Report of the commissioners appointed to inquire into the causes which have led to, or have aggravated the late outbreak of cholera in the towns of Newcastle-upon-Tyne, Gateshead, and Tynemouth.

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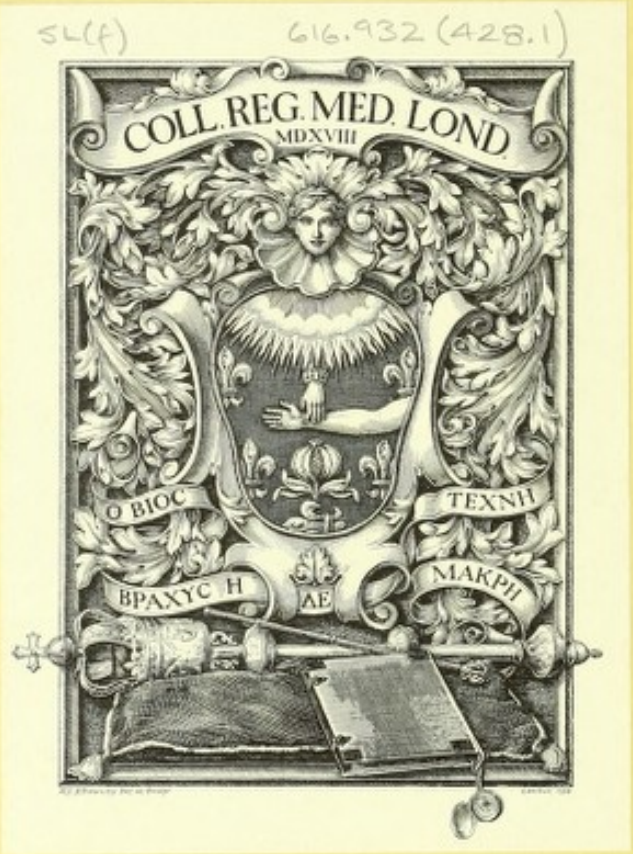
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GB Cholera Inquiry Commission

REPORT

OF

THE COMMISSIONERS

APPOINTED TO INQUIRE INTO THE

CAUSES WHICH HAVE LED TO, OR HAVE AGGRAVATED

THE LATE OUTBREAK OF CHOLERA

IN THE

TOWNS OF NEWCASTLE-UPON-TYNE, GATESHEAD, AND TYNEMOUTH.

Presented to both Houses of Parliament by Command of Her Majesty.



LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
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1854.

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REPORT.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY,

WE, by your Majesty's Letters Patents of the 31st December 1853 appointed "to be the Commissioners for inquiring into the causes which "have led to, or have aggravated, the late outbreak of Cholera in the towns of "Newcastle-upon-Tyne, Gateshead and Tynemouth," herewith humbly submit to your Majesty:

That, immediately upon the issuing of the said Letters Patents, we proceeded to the said town of Newcastle-upon-Tyne, and there, in the Town Hall, on the 5th January, 1854, in the presence of the Mayors, Town Clerks, and others, the officers and inhabitants of all the said three towns, duly opened and read the said Letters Patents and held a public meeting under and by virtue thereof; and that, after having advertised in all the local papers during two successive weeks our intention to that effect, and having also invited any and all persons to appear and tender evidence, we proceeded, in the Town Hall of Newcastle, on the 19th, and thence *de die in diem* till the 30th January, and again on the 7th, 10th, and 11th March, to take evidence upon oath relative to that town:—examining altogether about seventy witnesses, including four Superintending Inspectors of the General Board of Health; thirteen medical officers of the Newcastle charitable institutions; all the five medical officers of the Newcastle Poor Law Union; eight other medical practitioners; and several aldermen, magistrates, and other members and officers of the Corporation of Newcastle, and of the Board of Guardians there, besides other persons:—and again proceeded, in the Town Hall of Gateshead, on the 8th, 9th, and 10th of March, to take evidence relative to that town; and further in respect of Tynemouth took the evidence of the Town Clerk there;—the greater and more material part of the minutes of all which evidence is hereto annexed;—and that having also obtained documentary information from the Registrar General of Births, Deaths, &c., and from divers other sources, and having ourselves made several personal inspections, by night as well as by day, by ourselves and in company with official and other personages, of various parts and localities of Newcastle, more than one personal inspection of parts of Gateshead, and a cursory inspection of Tynemouth, we now beg humbly to report as follows:—

AND FIRSTLY, AS REGARDS NEWCASTLE:

1. That in the fifteen years, from 1839 to 1853, both inclusive, the town of Newcastle has been visited by various epidemics, some of which have been unusually extensive and malignant. Evidence, Q. 15, 18, 22, 25-29, 33-34, 45, 47, 658, 663, 1490-4, 4049.

2. That, during the late outbreak of cholera there, upwards of 1500 persons (1527 or 1533) perished in about nine weeks out of a population of about 90,000, (87,784 at the census of 1851,) being a mortality of more than 1 in 60 for that short period; that of the four parishes and five townships, into which the Borough of Newcastle is divided, one township appears to have escaped altogether, while in the others the mortality varied from 1 in 189 to 1 in 45; that in still more limited districts the mortality was in many instances still higher; 8 persons out of about 150 having died in one lane, 6 out of about 100 in another, 16 out of 192 in a third; 9 out of 64 in one court, 10 out of 70 in another, and 20 out of 119 in a third; while in one case there perished as many as 8 out of 31 in a single house, and in two other cases 4 out of 5 and 5 out of 6 in a single family. P. 145, 474. P. 473, and note. Q. 3982. Q. 7324. Q. 7219, 2246-54. Q. 2210-1, 2193. Q. 7119. Q. 4410, 4473-5.

3. That the mortality among every thousand inhabitants of Newcastle during each of the last fifteen years has, according to the returns furnished to us by the Registrar General, been as follows:—

Years.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.
Deaths per mille.	30·7	27·8	29·2	23·6	25·6	20·9	22·3	30·2	32·8	27·3	29·1	23·8	26·1	29·7	43·3

and that the mortality among every thousand inhabitants on the average of those fifteen years has been 28·6 per annum.

4. That it has been suggested to us that this death-rate is deceptive; firstly, Q. 1451-3, 6251. owing to its having been increased by the deaths in Newcastle of sick strangers, brought thither for medical advice or otherwise;—an increment, however, which (with the corresponding decrement, owing to the deaths of inhabitants of Newcastle in other places, whither they may have been taken for change of air) we do not, in the absence of any proof to the contrary, deem of importance;— Q. 1464-5. and secondly, owing to the deaths arising from accidents in mines and factories; but that, although in possession of no exact statistics upon this point, we have Q. 1466-7, 1836-7. reason to believe that the increment hence arising is also comparatively but Q. 1454-6. inconsiderable: to which we need only add that, as regards the first, a similar increment will appear in the death-rates of all considerable towns, and as regards the second, in the death-rates of all mining and manufacturing towns.

5. That it has further been urged upon us that the mortality of Newcastle is not by any means without a parallel; that the mortality among every Q. 7720, P. 464. thousand inhabitants of the four following places (selected for comparison with Newcastle by the Corporation of that place) has, on the average of the same fifteen years, and on the same authority of the Registrar General, been as follows:—In Leeds, 28·5; in Hull, 29·8; in Manchester, 33·1; and in Liverpool, 37·6 per annum; but that these facts have not, in our judgment, any material bearing on the question before us, more especially as the places compared appear to be by no means properly comparable, either in respect of natural advantages, or of many other highly important points.

6. That the town of Newcastle is situated on a steep slope, ascending from the Tyne to the height of some two or three hundred feet, at a point where this general slope is further cleft into lateral slopes and valleys by several tortuous Q. 5259 et seq. burns, deans or brooks, which there run into the Tyne; that the whole site of the town is a succession of acclivities and declivities, steep enough in many instances to be traversable only by long flights of steps; a great majority of the streets and thoroughfares lying at very considerable elevations, and even the Q. 4777-84. lowest being from five to eight feet above springtide highwater; and that (by P. 10, near bottom. universal consent) it affords remarkable facilities for sewerage, drainage, and Q. 304, 305. other sanitary arrangements; that the main body of the town does certainly lie P. 44, near top. in a kind of amphitheatre, surrounded on the west, north and east, by ground Q. 1667, 3829. higher than itself, and having on its south the Tyne, just where that river makes a considerable bend; but that the dimensions of this amphitheatre are too large, and the width of the river too great, to allow of our regarding these circumstances as any serious impediment to the general ventilation of the town; and Q. 232, 4735-9, 1759, 5131-8. that excepting these, and excepting that almost all the upper part of the town lies on clay or loam approaching thereto, we know of nothing in any degree unfavourable about its physical position, but, on the contrary, are of opinion that Q. 229. it might and ought to be a very healthy town.

7. That the death-rate of Newcastle above-mentioned, whether high or low Q. 67-73, 215-227, 530-5, 1066-7, 1832-5. as compared with that of other places, is unquestionably very high for Newcastle, and might as unquestionably be very greatly reduced; that, bearing in mind the great sanitary capabilities of Newcastle, we are of opinion that, on the average of the last fifteen years, the actual annual mortality has been nearly double the natural or necessary mortality of the place; and that (supposing no life were wasted for want of sanitary precautions and arrangements) 16 per 1,000 per annum would be an over high, 15 per 1,000 a moderate, and 14 per 1,000 by no means an unwarrantable estimate of that Q. 536-43, 1165-8. natural or necessary mortality; whence follows that, on the average of those fifteen years, (supposing the population during that period to have averaged 80,000), certainly 1,000, probably 1,100, and possibly even 1,200 lives have

annually been sacrificed in Newcastle, owing to the artificial aggravation of natural diseases.

8. That for each of the 1,000, 1,100, or 1,200 fatal cases thus annually produced in Newcastle, there will also have been produced several not fatal, but more or less severe, cases of the same artificially aggravated diseases; and that, when we reflect upon the amount of misery and distress entailed upon all classes, and of destitution, pauperism and even crime but too frequently entailed upon the poorer classes by such calamities—(to say nothing at the present moment of the expense of tending the sick, burying the dead, &c., especially to the payers of the poor's rate, who not only have to pay for their own, but also for their pauper neighbours' shares in these disasters)—we cannot but feel shocked at the spectacle before us: a spectacle, which is rendered only the more deplorable by the consideration, that the Corporation of Newcastle is not only ancient, wealthy and influential, but has for at least seven years possessed under its own local Acts (in addition to those conferred on it by public Statutes) unusually extensive sanitary powers, the exercise of which could not have failed signally to mitigate and reduce this excess of disease and mortality.

Vide post, § 100.

9. That the late outbreak of cholera in Newcastle was unquestionably more severe than any previous outbreak of that disease in that town, but not apparently more so than previous outbreaks of it in other places: and that this greater severity appears to have consisted rather in the greater extent of its attacks, than in the greater malignancy of them, or in the higher proportions of deaths to cases.

Q. 1188-92.

Q. 53-5.

10. That this greater severity cannot in any material degree have been owing to a circumstance, which (when present) habitually increases the virulence of epidemics generally, and which is known to have aggravated some of the previous epidemics in Newcastle, viz:—distress and insufficiency of food among the poorer classes; the whole population appearing to have participated in the recent prosperity of the place.

Q. 10, 19, 21, 84.

Q. 848-52, 5573.

11. That it has been suggested to us that this greater severity has been due to a greater intensity of some supposed ultimate virus or specific poison; but that we have no evidence of the operation, if even of the existence, of any such virus or poison, except in the presence of sanitary defects and grievances; and that it seems probable that this increased severity of cholera has been mainly due to an increased intensity of predisposing local causes.

Q. 786-9, 820, 1007-10.

Q. 110-4, 693-704, 789 819, 1200-43, 1302-12.

12. That many of the causes, which beyond all question have materially aggravated the virulence of many previous epidemics there, and, as we doubt not, of the late outbreak of cholera also, are obvious on a very slight inspection of the town, especially of the poorer districts; that few persons, probably, in any degree acquainted with sanitary matters, could pass through certain of those districts without at once seeing indications of sanitary defects and grievances sufficient to account for almost any extent of preventible disease and mortality; and that it would be difficult, we think, for any such persons to make a detailed inspection of those districts, or even to read the accounts of such detailed inspections, without coming to strong conclusions on the matter; and that the evidence which we have taken has mainly served, firstly to confirm in detail the accuracy of the impressions produced upon us by our personal examinations of the town, and secondly to convince us that no other tenable explanation of the habitual virulence of epidemics and continual excess of mortality there was forthcoming.

P. 12-16, 43-50, 52-61, 162-6, 171-230, 275-9, &c.

13. That these aggravative causes not only are now obvious, but have long been notorious in the town; that in the year 1846 remarkable sanitary powers for the suppression of many of them were obtained by the Corporation under a Local Act; that in the year 1847 two Sanitary Associations were formed there, the one consisting of the chief medical practitioners, town councillors and other principal inhabitants of that place and of Gateshead, and the other of the working men there, who from that time to this have taken a remarkable interest in such matters; and that these Associations, in their interviews and communications with the Corporation, in their reports and at their public meetings, have from time to time drawn particular attention to the existence and pernicious influence of those causes, as well as to the powers possessed by the Corporation for the suppression of them; that in the three years, 1847-9, a variety of memorials and representations on the subject were made to the Town Council and other local authorities in a variety of ways: and that in December

9 & 10 Vict. c. exxi.

Q. 85-7.

Q. 1253-7, 4945-6, 5061, 7168-9.

P. 273-4, Q. 7170-7, P. 39-43, 273-280, Q. 4956-61, 4970.

Q. 1181-7, 3830, 4202-9.

1849, an official inquiry into the mortality of Newcastle was instituted under the Public Health Act by Superintending Inspector of Health Mr. Rawlinson, in the course of which a great number of these aggravative causes, and the non-exercise by the Corporation of their then powers for the suppression of them, were specially and publicly adverted to.

P. 34-43.

14. That the annual reports of the Medical Charitable Institutions of the place (the trustworthiness of which has been affirmed by numerous medical witnesses), in commenting on the virulence and fatality of successive epidemics, have habitually indicated and pointed out those aggravative causes. For instance, in reference to the great scarlatina epidemic of 1845–7, we find it stated, that its ravages "were far from being greatest in the lower parts of the town," and that "the disease was fearfully fatal in confined courts, where the drainage was "superficial, filth accumulated, and the houses were devoid of proper means "of ventilation."

Q. 656, 910-3, 1061, 1153-7, 1486-7, 1945-7, 1990, 3334, 3772-3, 3926, 4068.

Q. 79.

In like manner, in reference to the great Irish fever epidemic of 1846-8, we find it stated that the poverty, filth, and bad ventilation in the chosen seats of the disease were such "as to warrant the fear of an epidemic disease being "generated among them, without an actual importation of it;" that "nothing "could be more ingeniously adapted for the engendering or disseminating of "infection than the tramper's boarding-house, or the tenemented dwellings of "the lower Irish;" that "here fever had its constant home;" and that "from "hence, when aggravated by privation, epidemic influence or other depressing "cause, it spread abroad."

Q. 83.

Q. 84, 665, 914-5, 1158.

Again, in allusion to the epidemics of 1852-3, we find it reported that "the "fatal issue of some of the cases seemed to be caused or hastened by the dark, "dirty, damp dwellings, in which the patients were confined, many of them "not being fit for the habitation of human beings;" that "a very large number "of cases of illness occurred among persons residing in the most crowded and "filthy rooms, possessing no means whatsoever of ventilation, so that the air "was of the most vitiated and stifling description;" and that the "maladies "affecting patients of this kind were usually of the most fatal character."

Q. 105.

Q. 106-7.

15. That the medical committee of the Newcastle and Gateshead Sanitary Association, in their report to Mr. Rawlinson, December 1849, after stating that the "excessive mortality during the last few years had arisen solely from zymotic "or epidemic, which are in fact the most preventible diseases," proceeded as follows: "To describe the seats of typhus and other forms of continued fever, "would be to enumerate all the narrow undrained alleys in the older parts "of the town, together with many equally unhealthy, because still more "neglected, districts in the suburbs. In many parts of Newcastle fever may be "said to be never absent; and a continued residence in those unwholesome "dwellings is certain to involve the prostration, and eventually the death, of "some members of the family by fever."

P. 40, Q. 676, 935-7, 1158, 1614-5, 3776-8.

Again, after alluding to "the comparative exemption of Newcastle from the "then recent visitation of cholera," "as a remarkable instance of the efficacy of "even the slight and partial measures then recently adopted for the sanitary "improvement of the town, and as a strong ground of encouragement for the "further prosecution of that improvement," the medical committee proceeded to observe, that "the comparatively few cases of malignant cholera which had "occurred in Newcastle supplied, they thought, amply sufficient evidence both "of the invariable dependence of attacks of this epidemic on certain predisposing "physical causes, and also of the necessity for continued vigilance on the part "of the authorities, lest this fearful disease, in the event of a further visitation, "by no means an uncommon accident in its erratic course, should exercise a "more destructive influence upon the inhabitants of Newcastle."

P. 41, 42.

Q. 681, 818, 939-40, 1510-5, 3780.

16. That "the continued vigilance on the part of the authorities," which, according to the report of that medical committee, had been proved to be necessary in order to guard against a further and more destructive outbreak—such as actually occurred last autumn—does not appear to have been exercised by those authorities; that, except in certain points partially affecting its out-door condition, no material or permanent improvement* in the sanitary condition of the town, and especially of the poorer districts, appears to have taken place

Q. 684, 941, 1176-80, 3782.

* Q. 666-72, 677-80, 754-82, 919-21, 930, 1073-91, 1147, 1201-3, 1421-33, 2562-7, 3163-70, 3637-44, 3653-64, 3731, 3900-3, 4077-80, 4168-9, 4494, 4666-70, 4827, 4913-6, 6447, 7011-7, 7178-82, 7191-6, 7204-9, 7243-5.

for many years; that the descriptions of the sanitary state of the town in previous years, hereto annexed, were in the main applicable to it in the autumn of 1853; that the same causes, which at those previous periods were reported as exercising an unfavourable influence in respect of the then prevalent epidemics, were also to a very great degree present last autumn, and exercised a similar unfavourable influence in respect of the late outbreak of cholera; and that the sanitary state, especially of the poorer districts of Newcastle, at the time of the late outbreak, was such as to warrant the apprehension that an epidemic, if it did make its appearance, would prevail there very severely.

Q. 79, 82, 83, 84, 105, 106. P. 41-43, 43-50. Q. 2887-99. P. 275-6. Q. 4282-3, 4963-9, 4977-88. Q. 942-6, 1118-26, 2559-61.

17. That some of the medical practitioners, who gave evidence before us, while concurring in the received views as to the laws which regulate the attacks and ravages of epidemics generally, made various statements and suggestions tending to intimate that the cholera, at its late outbreak in Newcastle, did not obey the same laws as ordinary epidemics, but proved itself more or less independent of the local causes predisposing to other epidemics; and, in particular, endeavoured to instance to us the occurrence of cholera in localities free from any material sanitary defects or predisposing local causes.

Q. 3461-3, 3481-2, 3496, 3501-5.

18. That we at once accepted the task of the investigation thus proposed to us, and from time to time pursued the inquiry into the true sanitary state of the localities * thus suggested to us as free from material sanitary defects; but that these investigations, far from conducing to the conclusions in support of which they were originally proposed, serve, in our opinion, rather to bear out the contrary, and to illustrate the close connection habitually prevailing between the virulence of cholera and the neglect of ordinary sanitary precautions.

19. That the circumstance, which chiefly gave rise to these peculiar views and suggestions, appears to have been this, viz.:—That the cholera, during its late outbreak, did not, as on former occasions, confine itself almost exclusively to the ordinary and habitual seats of disease, inhabited by the poorer classes, but also extended its ravages to adjacent and in some respects better conditioned localities, inhabited by the middling and even upper classes; but that this circumstance is, in our opinion, properly and easily explicable on recognized sanitary principles, and affords an illustration of, rather than an exception to, the ordinary laws of public health.

Q. 4-8, 30-2, 42, 48-50, 56, 58-61, 121-2, 653, 685-6, 741, 3746-7. Q. 568, 573-4, 796-8.

20. That one such explanation of a similar feature in the great scarlatina epidemic of 1845–7 was suggested in the Newcastle Dispensary Report for 1847, which, after observing that "in these confined courts the drainage was "only superficial, and that large masses of filth were allowed to accumulate "round the doors, while the houses themselves were almost entirely devoid of "proper means of ventilation, and this in localities surrounded on all sides by "the habitations of the wealthier classes," proceeded to inquire: "Can it then "be a matter of surprise that disease should occasionally visit them (the "habitations of the wealthier classes) with as much severity as the late "epidemic has, in too many instances, done?"—and that a similar explanation of this same feature of that epidemic was also given at the time by an independent medical practitioner.

N.D.Rep.AD.1847, p. 7. Q. 1488, 1497-1502.

21. That on the 12th September 1853, in the height of the recent outbreak, Mr. Grainger, Superintending Inspector of Health in the medical department, reported to the General Board of Health that "there was no doubt that the "general malaria, rising out of the neglected and miserable parts of Newcastle, "overhangs the whole town and penetrates into every domicile, and acts in this "epidemic period as an intensifying, predisposing, and all-influential cause."

P. 55, near bottom.

22. That, bearing in mind the unusually heavy and stagnant state of the atmosphere, which appears to have prevailed in the town during the worst dominance of the late epidemic, we are of opinion that the above is to a certain extent a true solution or explanation of the circumstance alluded to; and that we entertain no doubt whatsoever as to the virulence † of the

Q. 1517-21, 1714-21, 1973, 3958-60, 5771, 6075-6.

* Carliol-street—Q. 687-92, 705-18, 733-5, 784, 955-64. Ridley-villas, &c.—Q. 729-32, 736, 888-90, 965, 2615-9, 2628-30, 2661, 3679-3713, 4276-88. Collingwood-street.—Q. 3450-60, 3473. Clayton-street—Q. 3835, 4553-82, 4615-7, 4626-36, 4644, 4796-4802. Nelson-street—Q. 4592, 4647, 5915-20. Grainger-street—Q. 4953-4, 4608-12, 4803-10. Whalton—Q. 719-21, 1522-57, 1797-1805.

† Q. 108-110, 293-8, 818-9, 1137-46, 1165-77, 1495-1500, 1561, 1614, 1689, 1857, 2559-61, 2913-5, 3120-1, 3233-6, 3275-6, 3355-6, 3972-3, 3999-4005, 4048-60, 4067, 4211-2, 4275, 4354, 4388, 4423, 5283-7, 5294-6.

late outbreak having been substantially dependent upon the same sanitary defects, to which the virulence of other epidemics is known and admitted to have been attributable, and which are hereinafter adverted to.

Q. 88-99, P. 41, 42, Q. 1193-1200, 2483, 4072.

23. That the outbreak of cholera in Newcastle, A.D. 1848–9, was light and mild, and that this circumstance appears to have been ascribed, not only by the inhabitants generally, but also by the medical practitioners especially, to the temporary mitigation of the sanitary defects of the town, which had just previously been brought about under pressure of the great Irish fever epidemic, A.D. 1847–8, particularly in respect of a general cleansing which had then been effected by the Corporation, of an improved water supply, and of a newly-established system for the removal and exportation of town refuse.

P. 241-2, Q. 3521-5.

Q. 893-5, 2845, 3565 A-3566. Q. 722-8, 2847-67, 5146-9, 5168-72, 5182. Q. 2875-7 P. 471. Q. 1965-8. Q. 3383, 622-5, 891-8, 1129-35, 1392-5. Q. 3517, 3526. Q. 626-8, 899-900, 1396, 3564.

24. That in further corroboration of the above opinions we would observe, that, during the late outbreak of cholera in Newcastle, there were registered among the 519 persons then residing within the walls of the barracks there, over and above nine cases of dysentery, no less than 451 (more or less slight) cases of diarrhœa, of which, however, not a single one passed on into the more advanced or developed stage of cholera; while in the village of Spital Tongues (within the borough of Newcastle), very similarly situated and within 200 or 300 yards of the barracks—but whose sanitary condition appears to have been very bad—there occurred no less than twenty-seven or twenty-eight fatal, beside other not fatal, cases of cholera in a population of about 500 persons; that this comparative exemption of the barracks, although in part, no doubt, owing to the generally robust health of the inmates, will also in part have been owing to its originally better sanitary condition and to the energetic adoption of sanitary and medical precautions there immediately on the breaking out of the disease in the town; and that the adoption of similar precautions in Spital Tongues and throughout the rest of Newcastle could hardly have failed to exercise a similar influence in mitigating the virulence of the epidemic there also.

Q. 3871-2, 4203. Q. 3786-3815, 3857-8, 3867-8.

We may add that in the gaol at Newcastle, usually a healthy establishment, there occurred as many as 9 deaths from cholera out of a number of inmates never at any one time much exceeding 144, and, including all who at different periods of the epidemic passed through the prison, amounting to 236; chiefly owing, as it should seem, to the temporarily impure condition of the atmosphere there, arising from the temporarily overcrowded state of that institution.

Q. 123-9, 969-70, 1948-50, 1991, 3443-6.

25. That there is no evidence whatever to show that the late outbreak in Newcastle was in any degree owing to the arrival there of any infected ships, sailors or other persons from any already infected localities, or to any such importation from abroad as quarantine regulations or sanitary cordons could have prevented.

Q. 753-82. Q. 6628-85. Q. 7708. Q. 1593, 1601.

26. That considerable districts of Newcastle to this day present all the worst insanitary features of old walled towns, greatly aggravated by other evils of a comparatively modern origin; that except in respect of the destruction of a few small pestilent courts and entries effected by the driving of the York, Newcastle and Berwick and other railways through the town, by the making or preparing for some among the many new streets, which the Town Council by their local Acts have taken power to make, and by the pulling down of about thirty buildings in Sandgate, the older and lower parts of the town may, many of them, be said to have remained unaltered in their form of house-construction for centuries; the joint committee of the Town Council and of the Board of Guardians, in their report, Oct. 1853, observing that "Sandgate has existed, "as it now exists, for hundreds of years."

Q. 234-5, 594-6, 2009-10, 4082-4, 4355, 4922. Q. 4050. Q. 2067, 2306-8, 3015-8. Q. 4052.

27. That there are considerable districts, especially in the lower and older parts of Newcastle, in which almost all the houses are built back to back, so as to be incapable of through ventilation, and with their fronts within so few feet of one another, as to render it almost impossible for sunshine, wind or rain to reach directly even their exterior walls; many of these miserable lanes or entries being moreover closed up or covered over at one or even at both ends.

Q. 1807-11. P. 149-150. P. 15, 16.

28. That in the district known by the name of Sandgate there are a number of narrow lanes and entries, extending from the thoroughfare of that name and from St. Ann's Street northward to the New Road and southward to the Quay, whose aggregate length exceeds a mile, while their average breadth at the bottom but rarely exceeds four feet; the upper stories of the houses, many of which are lofty, often projecting over the lower ones, so as to leave at the

top nothing but a mere chink or rift for light and air to make their way through.

29. That, on entering some of the houses in such localities during our day-inspections of the town, we were arrested at the door by a darkness which was little less than total, and were obliged to wait a moment or two before we could see sufficiently well to grope our way up the stairs; and that more than one of the parochial medical officers have spoken to the fact of their sometimes labouring under the necessity of taking a candle, in order to see their patients in some of the rooms in these places, even at noonday in the height of summer. Q. 4050. Q. 2776, 3015, 3021. P. 55.

30. That the sanitary defects of such a character of house-construction (which can hardly have been otherwise than considerable, even when a substantial burgher with his single family occupied an entire house), are frightfully aggravated now-a-days; when, owing to the removal of the wealthier classes into the loftier and airier districts of the extending town, these lower and older parts have fallen almost exclusively into the occupation of the lower and lowest classes; and when, over and above that the houses, many of them centuries old, have become miserably decayed and dilapidated, not only is almost every single room throughout each house occupied by a separate family, but also many single and small rooms serve as the only habitation for two or more entire families, or for a whole family and for several additional inmates, visitors or lodgers. Q. 1279-80, 2062, 3975, 4078. Q. 2692, 2759. Q. 82, 550-2, 2061, 2286-90, P. 190. Q. 2973-8, 3485.

31. That there are other and considerable districts of Newcastle, in which, owing to the abruptness with which the site of the town slopes down to the river or its tributaries, whole rows of houses are built into or against the bank, so as to have the earth of the declivity above piled up against their back or side walls for a greater or less height, and so as to incur, in respect of so much of them at least, all the worst disadvantages of underground dwellings.

32. That the soil of the upper and by far the greater part of the site of Newcastle consists of a thinnish stratum of strong loam or clay, irregularly veined with sand or gravel, lying on a thick stratum of very impervious strong clay; that, owing to the very general want of drainage in many districts, this soil is necessarily and habitually damp; and that this dampness of the soil, aggravated in many instances by the infiltrations from the excessive filth with which the surface of the ground is strewn, is absorbed into the brick and timber work of the houses, especially of those built into and against the bank-side, until the walls of many of them are permanently and habitually damp, and but too frequently with worse than mere water. Q. 130-1, 232-3, 4735-45, 4759, 5131-9. P. 42, 278. Q. 599-600, 3211-3, 4171. Q. 135-42, P. 45, Q. 601-4, 1035-6, 1302-5, 3039, 3199, 3348, 4084, 4126, 4170, 4355, 4381, 4473, 4881-2, 5069.

33. That the report of the medical committee of the Newcastle and Gateshead Sanitary Association, made the 18th December, 1849, after alluding to one of the most notorious of such localities, in which, during three months of the epidemic of 1847, there had occurred 5 deaths and 50 cases of fever among 55 inhabitants, proceeds to observe:—"Nor was there any difficulty in discovering the physical causes which thus doomed the unfortunate inhabitants of these pest-houses to certain suffering, and the possible contingency of premature death; for being built in close contact with the earth forming the side of a steep bank, the walls of these houses were necessarily and constantly imbued with moisture, while a large collection of every species of filth from piggeries and heaps, &c., on the summit of the bank above, supplied a constant source of putrefying liquid to mingle with the natural drainage water, and ooze with it into the porous walls of the subjacent dwellings. It is but proper to mention that, since the period of that visit, the Town Council have enacted a bye-law forbidding pigs to be kept within the town; but the other evils remain unremedied, and are unfortunately but too common in all the low-lying parts of the town:"—to which we can only add, that many of the localities thus alluded to continued, until the time of our visits even, to exist in a state not materially altered from that in which they are thus described to have existed in 1847 and 1849; and that at the time of the late outbreak there were, we fear, but too many places to which such a description was in a great degree applicable. P. 40, bottom. P. 41. A. D. 1847.

34. That the far too frequent practice of building privies and ash-pits, where such conveniences exist at all, against the walls of houses, so as occasionally to allow of the liquid filth oozing directly through the walls into living and sleeping rooms, and so as habitually to bring these "poison pits" directly alongside or below them or otherwise close to their doors and windows, is another instance of P. 15, 48, 178-9, 215-6, 277-8. Q. 295, 2250, 2449, 2628, 2649, 2732, 2906-7, 3087, 4156-8, 5019-20, 7552.

the artificial and gratuitous aggravation of sanitary evils; and that, owing to the custom of allowing heaps of filth to accumulate in the corners of courts and entries against the walls of houses, every shower of rain, by saturating these heaps, tends to render and keep damp the walls of the adjoining houses, even where the means of ordinary surface drainage are not wanting.

P. 14.

35. That there are districts in Newcastle which, in the totality of sanitary evil, or in respect of the many sanitary defects simultaneously exhibited, are, according to three Superintending Inspectors of Health, whom we have examined, more misconditioned probably than any other districts of anything like the same area in any other town in Great Britain; that a negative confirmation of this testimony may probably be gathered from the refusal of the present superintendent of police in Newcastle (formerly a member of the metropolitan police in the Westminster district,) to answer our questions in respect even of the very first point, in which we proposed to institute a comparison between the worst districts of Westminster and of Newcastle; and that, whatever be the comparative condition of these latter districts, their actual condition is in the highest degree lamentable and prejudicial to health.

Q. 240-9, Letter, P. 28, Q. 591-2, 609-11, 1743-53, 1898 A, 1908.

Q. 6457-69.

P. 11.

36. That the joint committee of the Town Council and of the Board of Guardians in their report, October 1853, affirmed that "the greater part of "Sandgate is not fit to be inhabited;" and that there are considerable districts in the town which not only appear to be in the main unfit for human habitation, but also to be so radically misconstructed and decayed as to be, by consent of several witnesses,* almost incapable of being rendered fit for habitation so long as the present structures shall exist.

Q. 184, 1585-6, 1592-5, 1761, 2456-66, 2567, 2580-9, 2769-78, 2922-3, 3026-34, 3043-6, 3980, 5070.

Q. 2011-2.

37. That the district, most frequently referred to as an instance hereof, is that of Sandgate, which, however, appears to be by no means the worst in all respects among the districts of Newcastle; that a district known by the name of Pandon is probably worse than Sandgate; and that there are other districts also whose sanitary condition appears to be but little, if any, better.

Q. 289-90, 1600, 1751-2, 1906, 2428-36, 3484, 4917-27, 6452.
Q. 1603, 1753-4, 2306-15, 2410-6, 3158-90, 3220, 3336-48, 3485-6, 4100, 4444-52, 6453-4.

38. That the insanitary condition of the older parts of Newcastle has, in many instances, been the slow and cumulative result of gradual, and therefore imperceptible, changes; whereas in the newer parts a similar miscondition has arisen from the deliberate intentions of the builders: many rows and streets having been erected or re-built, even quite recently, and let as tenemented (which is only another name for overcrowded) houses, which were utterly unsewered and undrained, incapable of proper ventilation, wholly unsupplied with necessary domestic conveniences or else supplied with them in the most objectionable situations, and which had neither paving, flagging nor channelling about them to prevent in any degree the constant sinking and trampling of all sorts of filth and refuse into the ground, and the subsequent re-exhalation of noxious vapours into the air; while in several cases cellars and under-ground rooms, things almost unknown in the older parts of the town, have been introduced and converted into dwellings.

Q. 295-6, 608, 1576, 2516, 2649, 2919-21, 3191, 3233-4, 4056, 4181, 4293, 4995-5000, 5069.

Q. 2646-8, P. 215, top; Q. 3200, 4276, 4293-6, 4377, 4479, 5904, 7207-8.

P. 10.

39. That the joint committee of the Town Council and of the Board of Guardians, in their report, October 1853, observed, that "some modern streets "and lanes had been formed by speculators in those townships, which were "added to the Borough under the Municipal Reform Act, which were scarcely "less calculated to generate disease than the closely packed habitations of "Sandgate;" that Superintending Inspector of Health Mr. Lee, in his report to the General Board of Health, September 1853, in speaking of a part of the township of Westgate, observed that "typhus-fever, cholera or other "epidemic disease ought never to have existed in the neighbourhood, and never "would have done, but for the criminal cupidity of builders, and the absence or "non-enforcement of proper regulations;" and again, that, "after witnessing "the awful destruction of human life in this locality within the last month, it "was impossible to repress the strong feeling of indignation, which arose from a "conviction that it was all entirely preventible;" on all which points his report has since been confirmed by the testimony of Mr. Sang, parochial medical officer of the district including Westgate.

P. 16.

Q. 2919-21.

1 Vict. c. lxxii. § 22.
9 & 10 Vict. § 66-68, 98-103.

40. That under their Local Improvement Acts, 1837 and 1846, the Town Council of Newcastle obtained complete powers of supervision, and extensive,

* Q. 235-9, 596, 604, 803, 842-4, 985-92, 1147-8, 1273-4, 1282-5, 1587, 1594-9, 1618, 1755-8, 2013-4, 3045, 3071-91, 3222-3, 3349, 4485, 6450-1.

though not perhaps complete powers of control over the formation of new streets and the erection or re-erection of houses there, with a view to the enforcement of "all the regulations relative to the proper construction of "houses and buildings within the Borough," including the provision of proper domestic conveniences and other important points; that in 1849, on the occasion of Mr. Rawlinson's official inquiry, the Town Surveyor admitted that the latter Act had "been a dead letter altogether;" and that the same disregard of these important powers appears to have continued after that inquiry as before.

P. 37. Q. 3225-6, 6686-92, 6722-7, 6969.

41. That the house accommodation of the poorer inhabitants of Newcastle is, as a whole, exceedingly defective, not only in respect of the habitually bad form of house-construction, frequent dilapidation and dampness, and general destitution of necessary conveniences, but also in respect of other deliberately effected grievances, such as the making fixtures of windows, and thereby precluding ventilation, in order to avoid the expense of moveable sashes; and that there is no evidence to show that it has in any material degree been improving, internally at least, of late years.

Q. 2315. Q. 2570; P. 201-3, 276, 279, and notes. Q. 1269-1272. Q. 1976-85, 4091-4, 4825-7, 4854, 4893, 4914, 4963-9, 4975, 6924, 7178-82.

42. That the Corporation of Newcastle are themselves the owners of a considerable amount of house-property in the occupation of the poorer classes, especially in Sandgate, where they have been buying ever since 1837, professedly with the design of pulling a great part of it down; that within five or six years the condition of the Corporation property there was (if possible) worse than that of any other, and at all events so bad as to induce Mr. Newton, parochial medical officer of the district including Sandgate, to write several letters in one of the local newspapers, giving an account of some detailed inspections of parts of it, and stating that "a great part of their tenemented "property (in his district) was really unfit for human habitation and should be "condemned as such;" that since then their property there has been improved so as to be somewhat better in condition than some of the adjoining private properties, but still remains in a very bad state, and in many parts unfit for human habitation; and that in other parts of the town some of the Corporation property still continues in a condition, not only in itself extremely bad, but also worse than that of the private properties immediately adjoining.

P. 11, 202. Q. 2590, 6654. P. 200-4. Q. 2496, 2570, 2655-7. P. 200. Q. 2576-8. P. 11. Q. 2579-89. Q. 2753-78.

43. That the extent of this miserable house-property throughout the Borough may be judged of from the statement, that the tenemented (and until within a few months unrated) property alone produces a rental of about £60,000 out of a total Borough rental of about £300,000 per annum; that, beside the interest arising in connection with the Corporation property, the ownership of house property by individual corporators and citizens is acknowledged to constitute an important element in the Town Council, and to have exercised an influence fatal to the enactment of certain clauses in the last local Act of 1853, which would have been of the highest sanitary advantage; and that under these circumstances it seems difficult to avoid a conclusion as to what has caused, or conduced to, the obvious neglect by the Town Council of the various powers by their own local Acts (as well as by public Statutes) conferred upon them for the improvement of the house property, and the suppression of many sanitary evils, throughout the town.

Q. 7256, 7261-2. Q. 1246, 1260-1. Q. 6832-6, 7250-4, 7260-70.

44. That the poorer inhabitants of Newcastle are not only very ill lodged, but exceedingly overcrowded in their lodgings—in some degree, no doubt, owing to the comparatively high rents demanded for their miserable habitations; that "the overcrowded, ill-ventilated, and ill-arranged dwellings occupied by "the mass of the labouring population in tenements and lodging-houses" was the third of "the chief preventible causes of the excessive mortality lately "experienced in Newcastle," to which the medical committee of the Newcastle and Gateshead Sanitary Association alluded in their report to Mr. Rawlinson in 1849; and that this overcrowding among the poor is not unfrequently greatest at times when cholera or other epidemics are likely to be most prevalent, viz., in or about harvest time, when an additional influx of harvesters takes place, and when the autumnal season is producing its usual unfavourable effects.

Q. 82, 2959, 2972, 3161, 3184, 3215, 3352-3, 4089. 6926-9, 7178-82, 7243-5. P. 42. P. 54. Q. 4090.

45. That there are stated to be about 9,453 houses in the whole Borough, and 20,000 families or thereabouts, or on the average rather more than two families to each house throughout the Borough; that of those 9,453 houses, 6,900 or thereabouts are stated to be occupied as "self-contained houses" by as many single

Q. 6583. P. 469.

families, leaving about 2,553 houses to be occupied in tenements by the remaining 13,100 families, which gives an average of rather more than five families to each "tenemented house" throughout the Borough; and that from calculations, of approximate accuracy, made by the first Commissioner, (from documentary information furnished to him by the clerk to the Board of Guardians in Newcastle,) it appears, that of the whole number of families in the Borough of Newcastle only 34·7 per cent. occupy "self-contained houses," and only 2·5 per cent. occupy tenements consisting of three or more rooms each; while 23·5 per cent. occupy tenements consisting of two rooms each, and 39·2 per cent. occupy tenements consisting of but a single room each.

Vide table, post, p. xiii.

Q. 7094.

Q. 550-2, 2061, 2286-90. P. 190. Q. 2692,2759, 2973-8, 3485.

46. That, owing to some of the self-contained houses alluded to containing (to our own knowledge and experience) but a single room apiece, and owing to many of the tenants of the single-room tenements habitually taking other lodgers, and even whole families, to share with them the occupancy of their single rooms, 39·2 will by no means adequately express the per centage of the families or population of Newcastle residing in such tenements; and that we shall not probably be overstating the case, if we compute that about half the families in Newcastle are confined exclusively to the occupancy or joint occupancy of exceedingly overcrowded single-room tenements.

P. 276, near top.

P. 35.

Q. 6378.

P. 190, top.

P. 55, 54, bottom.

Q. 3794.

Q. 4053.

Q. 2292-2302.

47. That in 1847 the sub-committee of the Newcastle and Gateshead Sanitary Association in their inspections of certain entries in Sandgate found "from nine "to seventeen persons in one room;" that in 1849, at the time of Mr. Rawlinson's official inquiry, evidence was given by one of the inspectors of nuisances of "as "many as fifteen, sixteen and nineteen persons" having been found in single rooms; that in February 1851, the inspector of nuisances reported that he had "visited "sixteen lodging rooms" in Eddy's entry, Sandgate, and had "found from eight to "ten women and children in each room," while the parochial medical officer reported that in one out of fourteen rooms, which he had visited, there were sixteen people, while in each of two others there were three whole families, numbering nine and twelve persons respectively; that in September 1853, Superintending Inspector of Health Mr. Grainger obtained information of cholera having broken out in rooms, in which as many as twenty or twenty-five occupiers were congregated; there being, in the latter instance, but fifty cubic feet of space or air (furniture, &c., not considered) for each individual—the smallest allowance usually permitted in registered lodging-houses being, as we believe, from 300 to 350 cubic feet, and the allowance usually recommended for each inmate by the inspectors of prisons, the directors of hospitals, &c., being, as we are informed, about 1,000 cubic feet or upwards; that on the 20th November 1853, just after the cessation of the late outbreak, the inspector of lodging-houses and the parochial medical officer of the district found 220 inmates in twenty-three rooms in Eddy's entry; and that out of the fourteen among those rooms, whose dimensions as well as the numbers of their inmates were taken, there were two, in each of which were fifteen persons, having on the average 97 cubic feet of space apiece (furniture, &c., not considered); one in which were fourteen persons, having 104 cubic feet apiece; three, in each of which were twelve persons, having 120 or 121 cubic feet apiece; two, in each of which were nine persons, having 128 cubic feet apiece; two, in each of which were twelve persons, having 150 cubic feet apiece, and one in which were eight persons, having 156 cubic feet apiece: and that our own experience during our nocturnal inspections of the town goes fully to confirm the impressions from the foregoing statements derivable.

Q. 83-84, 183-4, 1313-9, 1569, 2504, 3001, 3185-6, 4171-8, 4468, 4832-40, 4889-90, 4924-5, 4949-55.

Q. 285, 553, 4421, 4452, 4469, 4831. P. 54, bottom, 55, top. Q. 2306-10, 7710.

48. That in consequence of the frequent ill construction, ill ventilation and overcrowding of the habitations of the poorer classes (as well as of the want of sewerage, drainage, proper domestic conveniences and other matters hereafter to be adverted to) the condition of many of the tenements, which form the residences of about three-fourths—and especially the condition of many of the single-room tenements, which form the residences of about half—of the entire population of Newcastle, has habitually been "filthy and unwholesome," even where not technically describable as "unfit for human habitation;" that the stench experienced on entering some of them is in the highest degree offensive, so as occasionally to cause nausea and vomiting, even among persons who from their avocations might be expected to be more or less inured thereto; and that the effects of all this upon the health of the inmates and of the vicinity generally can only be equalled by the corresponding effect upon their morals and sense of decency.

49. That the Local Improvement Act for Newcastle, 1846, enacted that it should be "lawful for the Town Council from time to time to make bye-laws for "laying down rules for cleansing filthy and unwholesome dwellings," "and to "ascertain and fix what pecuniary penalties should be incurred by persons "breaking such laws;" that towards the close of the next year, 1847, Dr. Robinson, honorary secretary to the Newcastle and Gateshead Sanitary Association, by a paper published in the Journal of Public Health, drew attention not only to the existence of these powers, and of the evils for the suppression of which they might have been exercised, but also to the fact that they had been allowed to remain "wholly inoperative;" that the Newcastle Medical Institutions and Sanitary Associations in their reports and at their public meetings, &c., heretofore alluded to, would seem to have frequently, all but in terms, suggested the propriety of enforcing this power; and that the exercise of it would at all events have been eminently desirable, and would no doubt signally have mitigated the ravages of the late epidemic; but that no such exercise or enforcement of it appears ever to have taken place, and that no such rules or byelaws have ever been made.

9 & 10 Vict. c. cxxi. s. 109.

P. 279-280.

Q. 875, 1320, 1339, 2506-8, 3118-20, 3357. Q. 6697-6700, 6406-7, 589-90, 932-3, 1127-8, 1340-2, 1433, 1570-2, 1817 n, 2505, 2981-2, 3108-11, 3189, 3202, 3851, 4172-4.

50. That from the evidence of Superintending Inspector of Health Mr. Lee, as confirmed by the testimony of the parochial medical officer, Mr. Sang, it appears that at the time of the late outbreak "hundreds of the newly built "tenements," in one district of the township of Westgate alone, "ought to have "been immediately closed by the local authorities as unfit for human habitation;" that within eleven weeks after the putting in force of a provision to that effect in the Local Improvement Act of 1853, 102 tenements in Newcastle were shut up as "unfit for human habitation," while many more required and require so to be; the chief limit to such a proceeding, apparently, being that suggested by the fear of leading to a still greater overcrowding of the tenements not shut up.

P. 16. Q. 2922-3.

16 & 17 Vict. c. clxxxii. s. 32.

Q. 6706-7, 1081, 4874-88.

Q. 1642-5, 1872-3.

51. That it has been suggested to us by the Corporation, that the power of the Local Act of 1846 was insufficient for the purpose in view; but that we not only have been unable to elicit in what respects it was so, but also have been unable to discover that any serious attempt was ever made to take advantage of it; to which we may add that the avowedly sufficient power of the Local Act of 1853, (passed the 4th August,) was never put in force until the day after the late outbreak had reached its climax (the 17th September), and then only at the instigation of the officers of the General Board of Health.

Q. 1159-61, 1177-86, 6698-700, 6863-7.

Q. 1761-6.

52. That by an analogous clause of the same Local Act of 1846 it was enacted, "that when it should appear to the Council conducive to the public health, and "might tend to prevent or check infectious or contagious disease, it should be "lawful for the Council from time to time, if they should think it expedient, to "order the occupier of any dwelling house within the said borough, to white-"wash, cleanse and purify the same in such manner and within such time as "the Council might deem reasonable," with penalities for non-compliance, and with this provision superadded, "that when on account of the poverty of such "occupier or other special circumstances, it should appear expedient to the "Council to pay the whole or any part of the expense of such whitewashing, &c. "it should be lawful for them to do so;" that the sub-committee of the Newcastle and Gateshead Sanitary Association for the west ward of All Saints, in their report, June 1847, recommended that "the walls of the entries, as well "as those of the houses situated in them, should be whitewashed at least twice "a year, if not oftener, more especially in the lodging houses;" but that this power appears never to have been exercised and enforced, except under the pressure of developed epidemics, and to have been allowed to fall into disuse immediately after.

9 & 10 Vict. c. cxxi. s. 97.

P. 276, bottom.

Q. 6693-6. P. 35. Q. 1037-40, 2114-23, 3203-6, 3216-9, 3742, 3781-3, 4175-80, 4197-8, 4843, 4935-7, 4966, 6972-5, 7197-203.

53. That under the same Local Act of 1846, the Town Council further obtained power "from time to time to make byelaws for making regulations for the "registering of lodging-houses, and for maintaining cleanliness therein, and "keeping them in a wholesome condition," and "to ascertain and fix what "pecuniary penalties should be incurred by persons breaking such laws;" that the first among the various suggestions submitted to the Town Council in 1847, by the committee of the Newcastle and Gateshead Sanitary Association, appears to have been "the immediate preparation and enforcement of byelaws for the "regulation of lodging-houses;" and that at a later period of the same year the honorary secretary to that Association publicly drew attention to the fact, that

9 & 10 Vict. c. cxxi. s. 109.

P. 274.

P. 279-280.

the powers of the Town Council for that purpose had been allowed to remain "wholly inoperative;" that on the 16th October, 1848, during the then outbreak of cholera, the medical men associated with the Board of Guardians into a sanitary committee (many of the members of the Board of Guardians being also members of the Town Council), pointedly adverted to the evils resulting from the overcrowding of lodging-rooms, and "strongly recommended that all the "lodging-houses be placed, if possible, under the supervision of the police, to "the end that no more than a certain number of lodgers should be allowed to "sleep in each room;" that in 1849, on the occasion of his official inquiry in Newcastle, Mr. Rawlinson was informed by a then late member of the Town Council, that the clause conferring this power had been allowed to remain "a "dead letter," and by the medical committee of the Newcastle and Gateshead Sanitary Association, that they would desire to see "the registration and sanitary "regulation of lodging-houses," with a view to the removal of causes of disease then existing in the town; that in March 1851 Mr. Newton, a parochial medical officer, in a letter to the Board of Guardians, suggested to that body to "request "in the proper quarter the application of byelaws to public lodging-houses, "and to what may be denominated private lodging-houses, if the law extends "to them;" that in the latter part of 1851 the Common Lodging-houses Act, 1851, came into operation, conferring on the Town Council very important powers in respect of common lodging-houses; and that the Board of Guardians are stated to have been anxious for the carrying out of that Act, and to have brought the matter before the Town Council; that in the early part of 1853 the same parochial medical officer, then become a member of the Town Council, "in his place in the "Town Council brought before the notice of the Corporation the fact that the "Common Lodging-houses Act had been left nearly a dead letter," and "was "at the trouble of supplying one of the members of the committee" of the Town Council having charge of such matters "with a copy of the byelaws, "which the Secretary of State had certified in other towns;" but that, in spite of all these suggestions and efforts, the compulsory clauses of the public Statute (as to the bare registration of lodging-houses) seem alone to have been enforced: no byelaws or regulations for the better management of lodging-houses having been made, and (if we except a vague surveillance said to have been exercised over them by the police in the absence of such regulations,) no advantage whatever having been taken of the discretionary powers either of the general or local Act, until the second day before the mortality from the late outbreak reached its maximum; a circumstance which, in its results, unquestionably contributed to aggravate the virulence of that outbreak.

Q. 6861.
Q. 6329-31.
P. 35
Q. 6895-6.
P. 42.
P. 190.
14 & 15 Vict. c. 28.
Q. 6404, 6414, 6422.
Q. 2498-2502.
Q. 6470-85.
Q. 6701-5, 6769-70, 6783-6.
Q. 6854-9. P. 11, bottom.
Q. 616-8, 1127, 1160-4, 1775-7, 1817 A., 2503, 3107, 4202.
Q. 1045-7, 1177-80, 6405.

54. That it has been suggested to us by the Town Council, in respect of the non-exercise of these, as of other powers, that the powers themselves were insufficient; that of course, as regards the Common Lodging-houses Act, the same (but no greater) difficulties of construction will have arisen in Newcastle as in other places, in which, nevertheless, the powers have been used and enforced with great advantage; and that, considering the entire neglect by the Town Council of their apparently unlimited power as to "cleansing filthy and unwholesome "dwellings," it would seem superfluous to go further into the difficulties arising in respect of the far more limited powers as to "lodging-houses."

Q. 6844-59.

55. That "the preservation of any unoccupied ground belonging to the "Corporation, and its allotment on favourable terms to any persons, who may "undertake to build houses suited to the requirements of the working classes," was one of the suggestions submitted to the Town Council in 1847 by the committee of the Newcastle and Gateshead Sanitary Association; that the provision of "suitable dwellings for the working classes, on the plan of those erected by "the London Association," was one of the desiderata publicly adverted to by the medical committee of that body in their report to Mr. Rawlinson, December 1849, and also by the Committee of the Working Man's Sanitary and Mutual Improvement Society there; that in 1851 the Labouring Classes' Lodging-houses Act, 1851, came into operation, conferring on all Town Councils, Local Boards of Health, &c., discretionary powers highly valuable for such a purpose; and that under the peculiar circumstances of Newcastle the exercise of these powers would have been peculiarly desirable; but that no advantage has ever been taken of them.

P. 274, bottom.
P. 42.
Q. 7210.
14 & 15 Vict. c. 34.
P. 11.
Q. 874, 1041-4, 1321-2, 1821-7, 3245, 7211-2.
Q. 1431-2, 6787.

56. That, with a view to ascertain whether, in the various parishes or townships of Newcastle, any relation or approximate relation could be discovered

between the rates of mortality from cholera during the late outbreak and the relative proportions of the families therein respectively occupying self-contained houses or tenements consisting of three or more, of two, or of but a single room each,—especially, when taken in connection with the densities of the population or the average numbers of persons in each family or inhabiting each house, tenement, or room,—the first Commissioner has prepared (from documentary information furnished to him by the clerk to the Board of Guardians in Newcastle) the following table:— P. 469, 473.

Parish or Township.	Number of Tenants or Families.	Population.	Average Number of Persons in each Family.	Percentage of Tenants or Families occupying				Rate of Mortality from Cholera in Sept. and Oct. 1853.
				Self-contained Houses.	Tenements consisting of three or more rooms each.	Tenements consisting of two rooms each.	Tenements consisting of a single room each.	
St. John - -	1,725	9,858	5·68	23·7	1·	23·	52·2	1 in 45.*
Byker - - -	1,386	7,040	5·08	9·1	—	84·4	6·5	1 in 53.
St. Nicholas -	1,075	5,361	4·98	20·	·9	18·5	60·4	1 in 56.†
Westgate - -	3,759	16,479	4·38	31·9	5·6	37·6	24·8	1 in 57.
All Saints -	7,443	26,110	3· 5	36·8	2·	8·7	52·4	1 in 58.
St. Andrew -	2,924	15,639	5·34	48·6	1·6	12·4	37·4	1 in 62.
Elswick - -	1,036	3,538	3·41	43·6	7·	37·4	11·8	1 in 82.
Heaton ‡ -	—	—	—	—	—	—	—	—
Jesmond - -	396	2,089	5·25	72·7	—	12·8	14·4	1 in 189.
Total - -	19,744	86,114	4·36	34·7	2·5	23·5	39·2	1 in 57.

57. That from this table it appears that in 3 out of these parishes or townships, (St. John's, St. Andrew's, and Jesmond,) as the number of families, occupying self-contained houses, increases from 23·7 to 48·6 and 72·7 per cent., and as the average number of persons in each family, house, tenement or room, decreases from 5·68 to 5·34 and 5·25, so also does the rate of mortality decrease from 1 in 45 to 1 in 62 and 1 in 189.

That in 5 out of these districts (St. John's, Westgate, All Saints', St. Andrew's and Jesmond), as the number of families occupying self-contained houses increases from 23·7, 31·9, 36·8 and 48·6 to 72·7 per cent., so also does the rate of mortality decrease from 1 in 45, 57, 58 and 62 to 1 in 189.

That in 6 out of these districts, (St. John's, Westgate, All Saints', St. Andrew's, Elswick and Jesmond,) as the number of families, occupying either self-contained houses or else tenements consisting of 3 or more rooms each, increases from 24·7, 37·5, 38·8, 50·2 and 50·6 to 72·7 per cent., so also does the mortality decrease from 1 in 45, 57, 58, 62 and 82 to 1 in 189.

That, though in these particular figures a decrease of cholera mortality seems to accompany an increase of self-contained houses, no regular proportion can here be shown between a decrease of the one, and an increase of the other.

That other illustrations of, and also some exceptions to, the conclusions above suggested or indicated, may be discovered by a further examination of the above table; but that we do not consider it requisite to dwell at any greater length hereon; no exact proportion, of course, being traceable between successive final results (of epidemic mortality) and the successive variations of but one or two causal agencies, (conditions of house occupation and of crowding), which are only approximately co-indicative of several other concurring ones, (such as the presence or absence of adequate sewerage, drainage, paving, scavenage, domestic accommodation, cleanly and temperate habits, &c. &c.); especially when traced through districts so different as the in-parishes (St. John, St. Nicholas, All Saints, and St. Andrew) and out-townships (Byker, Westgate, Elswick, Heaton, and Jesmond) of an old-walled borough, occupying sites varying as much as

* Including that in the Infirmary, the mortality of St. John's was 1 in 43.

† Including that in the Vagrant Ward, the mortality of St. Nicholas was 1 in 47.

‡ The corresponding statistics in respect of Heaton have not been obtainable, owing to no deaths having occurred there from cholera.

from 20 or 30 to 200 or 300 feet above the river level, and having their inhabitants in some cases comparatively widely scattered, and in others closely packed together.

Q. 392-405. P. 45, top; P. 47, near top.

58. That, with reference to the sewerage of Newcastle, it appears that the conclusion to which Mr. Rawlinson, C. E., was led in the course of his official inquiry in 1849, and which confirms the report previously made in 1848 by Mr. Baynes, C. E., was "that in respect of main sewers Newcastle was very "well provided, but that in respect of branch sewers or house drains into main "sewers, it was very inadequately provided;" that the joint committee of the Town Council and of the Board of Guardians, in October 1853, reported, that "of late years there had been a large expenditure in the formation of common "sewers, but that the benefit derived from these sewers had been comparatively "trifling, for want of an underground communication between them and the "dwellings of the inhabitants;" that, on the average of the last five years, sewer-rates to the amount of about 1,200*l.* per annum appear to have been levied and expended by the Corporation in the making of public sewers, over and above a sum of perhaps 200*l.* per annum expended in making private branch sewers; that the length of main and branch sewers existing in the town at the time of our visits appears to have amounted to about fifteen miles; but that the extent of house-drainage, or the number of house-drains leading into those sewers, (and by means of which alone any great sanitary benefit could be expected to arise from them,) appears to have been lamentably small.

P. 10, near bottom. Q. 4688. Q. 7714-9, 6713-5. Q. 6525-6, 6788-90. Q. 281-3, 375, 427, 1670, 1736, 1861-7, 2003, 2441-3, 2889-92, 3783, 3851, 6885-6.

59. That of the 9,453 houses or thereabouts in the whole borough of Newcastle, only 1,421 or thereabouts even now have water-closets or faecal house-drainage; the remaining 8,032, or more than five-sixths of the whole, being still entirely unprovided in that respect.

Q. 5746-53, 6616-9, 4683-7.

That of the 9,453 houses in the borough only 5,461 are drained in any way or to any extent; 3,992, or more than two-fifths of them, being utterly and entirely without drains of any kind or sort, even for carrying off rain floods.

Q. 6581-6, 6791-7.

60. That in the early part of 1848 the Newcastle and Gateshead Sanitary Association in their first annual report expressed a hope, "that ere the expiration "of another year a proper survey would have been made of that district, and "that plans of sewerage, on a scale commensurate with the requirements of the "town, would be in active progress;" that in September 1848 Mr. Baynes, C.E., reported that "there was no map, to any sufficient scale, of the existing "sewers; that their falls were not registered, nor their levels in any point "determined:" that on the 20th November 1848, during the then outbreak of cholera, the sanitary committee, consisting of the board of guardians and others, unanimously resolved, "that the Corporation be memorialized on the subject of a "general drainage throughout the borough, and that they be requested to supply "the board with a map of the drainage," and that a memorial to this effect was presented to the Town Council by a magistrate and alderman; that several applications to the Town Council for such a map have since been made by at least one member of that body; and that some efforts have been made, and considerable materials in respect of the shapes, sizes, levels, falls, &c., of the sewers collected, with a view to such a map; but that down to the time of our inquiry there was none such in existence:—nor indeed was there any map even of the town in existence, of scale sufficient to allow of the deaths from cholera during the late outbreak being dotted down upon it in their appropriate localities, so as to constitute a proper cholera map, such as has been prepared for us by the authorities of Gateshead.

P. 274. P. 44. Q. 1187, 4106, 6335-7. Q. 1181. Q. 2525-31. Q. 6527-8. Q. 7006-7, 7277-83. Q. 1857, 7136-9.

61. That in 1843 Dr. Reid in his report appears to have commented on the absence of any proper drainage system in Newcastle; that in 1846 the Town Council, under a Local Improvement Act, obtained authority, not to compel, but to "empower" persons to carry private drains into the common sewers; that in September 1848, Mr. Baynes reported that "the general systematic evils, which "Dr. Reid in his report had spoken of, still continued to injure the sanitary "condition of the town;" that during 1847 and 1848, the attention of the Town Council was pointedly and publicly drawn in a variety of ways, to the defectiveness of the existing drainage, and to the necessity not only for some more comprehensive system, but also for some power "to compel" the draining of private streets and courts; that in 1849, on the occasion of Mr. Rawlinson's official inquiry, "the absence of any covered drains in many of the public streets

9 & 10 Vict. c. cxxi. s. 81. Q. 6812-4. P. 44. Q. 1181-7, 1263-4. P. 189, 273, bottom, 274. Q. 4106, 6332-5, 7171-7.

"and in nearly all those narrow entries, courts and alleys, which contain a very "large proportion of the poorer population," was publicly commented on, and the importance of a complete and comprehensive system of drainage adverted to both by the Medical Committee of the Newcastle and Gateshead Sanitary Association, and also by the Association at large; that in 1850 the Town Council, under another Local Improvement Act, obtained power to compel in certain cases the making of private branch sewers, but not apparently to compel in any case the making of a single house-drain; and that, while averse to the application to Newcastle of the Public Health Act, which would have invested them with complete powers to this effect, the Town Council had nevertheless neglected to obtain analogous powers under any of their own Local Acts until within a few weeks before the recent outbreak: and that to these circumstances must be attributed the (at the time of that outbreak) extensively undrained condition of the town, and all the aggravation of that outbreak, to which that deficiency of drainage cannot have failed to conduce.

P. 39, 42.

13 & 14 Vict. c. lxxvii. s. 16. Q. 1266-8, 1338, 6402, 6798.

Q. 348-57, 420-2.

Q. 1121-2, 1736-7, 2452, 2625, 2643, 2652, 2887, 2895-6, 3988, 4203, 4279, 4293-6, 4360-1, 4839-41, 5150-3, 6789, 6883, 6897, 7358, 7405.

62. That, without having ourselves entered the sewers of Newcastle, we have no hesitation in reporting—indeed we are unable to resist the inference—that the system of sewers, at the time of the late outbreak there existing, was very defective[1] and inefficient; that the system, as in many other towns, was entirely one of patchwork[2]; that in several places larger sewers ran into smaller[3] ones, and that some were of insufficient dimensions,* so as to lead occasionally to floodings; while others again were too large[4], and others of questionable forms[5]; that some of them appear to have been laid down in questionable situations,[6] so as to run along the summit ridges of hills; while others were of improper levels; some of them being above the cellars of the adjoining houses, so as not only to be incapable of draining those cellars,[7] but also to be liable occasionally to inundate them with leakage, and others again being so near the surface, as to be roofed or covered by the flagstones[8] of the footway; that some of them, being but indifferently constructed, were liable to be torn up and obstructed,[9] and that this was the case in January in one of the two instances, in which (owing to particular circumstances) we thought it requisite to direct a special examination to be made; that some of the largest and most important of them, viz., the deans or burns which there run into the Tyne, were still but partially covered in† and to the highest degree offensive; and that many and perhaps most of the others, especially in summer weather, when there is but little rain-flushing, were liable to, and probably did, become foul with deposit and that this was the case in January in the other of the two instances, in which, as before stated, we thought it requisite to direct a special examination: that evidence was laid before us by the Corporation, that in February a large extent of the sewers were in excellent condition, but that it was at the same time admitted that, beside the ordinary flushings from winter snows and rains, a great deal had been done recently in the way of artificial flushings, and that, owing to the amount of rain having been so much less in the summer, the state of the sewers at the time of the cholera will, no doubt, have been "greatly" or "considerably worse" than in February, as also that it actually was worse, when last seen before the recent outbreak; that it has not been usual, in Newcastle, hitherto to trap the gully grates communicating with the sewers, and that at the time of our inquiry only 132 out of 980, or less than one-seventh, were trapped; and that a number of witnesses deposed to having habitually, and particularly just before or during the recent outbreak, experienced offensive and pernicious odours from these grates, in various parts of the town; that the house drains, which did exist, (and over the formation of which the Corporation have possessed, but have not adequately exercised, a power[1] of supervision and control) appear to have been, many of them, but rudely constructed, so as to have been liable frequently to get choked[2] up, and to evolve prejudicial and offensive effluvia; that in many instances also the water-closets which had been introduced appear to have answered but very indifferently the purpose for which such things are designed;‡ that several witnesses have deposed to the noisome smells[3] arising in the houses from those sources, especially after rain; to such an extent, indeed, that some have not hesitated to denounce them as things injurious[4] to health, which ought to be banished and removed outside the

[1] Q. 277, 3837-41, 4057, 4105, 4857, 6530, 6995.
[2] Q. 309-10, 375, 394, 3842, 3897-8, 6547, 6569-72, 6580-90, 6596 8, 7012, 7035.
[3] Q. 279-80. P. 38, bottom; Q. 4653-8, 6537, 6539, 7019-20.
[4] Q. 4112, 6530, 6537-8, 6544, 7021-2.
[5] Q. 312-4, 6529, 6562.
[6] Q. 6542-3, 6995, 7000.
[7] Q. 2836-41, 3752, 3968, 4138-40, 5055, P. 334, Q. 6587-8, 6740-4, 7083, 7119-25, 7346-9, 7390, 7457-65, 7638.
[8] Q. 6548, 7081.
[9] Q. 6373-4, 4803-10, 6566-8, 7625-6.

Q. 320, 3835, 4117-21, 4786-8, 4796-4802, 6531-2, 7032-48.

Q. 7590-618, 7627-65

Q. 7031, 7624.

Q. 7666-78.

Q. 7619-21.

Q. 6599-605

P. 179, top, Q. 2659-61, 3590-3, 3835-6, 3905-9, 3941-9, 3960-3, 4037, 4105-11, 5047-60, 6039-41, 6454, 6591-2, 7024-31.

[1] Q. 6606-15.
[2] P. 44 bottom. Q. 2887, 3752-4, 3838-41, 3956-7, 4002, 4009-12, 4127, 6338-70, 6401.
[3] Q. 3470-1, 4001, 4011, 4529, 4537, 5089-94, 5102, 5114.
[4] Q. 3448-9, 3472, 3479, 3594-5.

* P. 36, 38, 42. Q. 4279, 4296, 4527, 4549, 4647-51, 6372, 6375, 6533-6, 7018-23.

† Q. 307, 2718-9, 2831-5, 2843, 3251-62, 3941, 3966-8, 3999-4000, 4858-61, 5080-97, 5158-9, 5242-50, 6288, 6305, 6736-7, 7510-5.

‡ Q. 3234, 3448, 3471, 4113-4, 4128, 5250-5, 5192-8.

houses: and that these circumstances must obviously have exercised a most unfavourable influence upon the sanitary state of Newcastle, and upon the virulence of the late outbreak.

. 3939, 3974.

63. That, as will be obvious from what has been already said, the general arrangement in Newcastle, even among the upper and wealthier classes, is (where any such arrangement exists at all) that of open privies in immediate proximity to the houses; and that this arrangement still continues in many of the 1,421 houses, which also enjoy the accommodation of water-closets.

. 951-4, 1237, 3594, 3699, 3827, 4721, 7418-9.

Q. 3939, 3951-2, 4129-34, 5754.

64. That the accommodation for the inhabitants of Newcastle in this respect, —for the poorer classes* throughout extensive districts, and even for the middling and upper classes in some parts of the town—was at the time of the late outbreak exceedingly deficient; that in the district of Sandgate, out of a population computed at 4,600 persons, perhaps not 100 had right of access to any private privy; and that, at the very lowest computation, more than nine-tenths of that resident population (besides the casual population of the shipping alongside) were wholly dependent on a single public privy; that in another district, containing perhaps 3,000 inhabitants, there were but one public and one or two private privies; and that the parochial medical officer of one of the most densely populated districts computes that 15,000 families in Newcastle, or perhaps two thirds of the entire population of the town had (and have) no right of access to any private privy: the accommodation in respect of ashpits or dustbins being also exceedingly, if not equally, deficient.

Q. 2471-5, 3455-8.

Q. 1839.

P. 15.

Q. 285, 605, 2319-45, 2951-5, 4146.

Q. 4357, 4384-5, 4404.

Q. 2342-56.

Q. 287, 1738, 2085, 2125, 2369, 2379, 2472, 2979, 3079, 3195, 4002, 4857-7, 4938.

65. That in 1846 the Town Council obtained a Local Improvement Act, which enacted "that the owner of every house within the borough, to which no "sufficient privy or ashpit was attached, should provide such," &c.; "that no "house should thereafter be built within the borough without such," &c.; and "that it should be lawful for the Council to cause any house or building, which "should be built or erected contrary to the provisions of that Act, to be taken "down or altered" at the expense of the owner; that in 1847 attention was publicly drawn to the fact that these powers existed, but had been allowed to remain "wholly inoperative"; that in 1849, at the time of Mr. Rawlinson's official inquiry, it was admitted that these clauses had not been carried out; and that no attempt even to carry them out appears ever to have been made since that time.

9 & 10 Vict., c. cxxi. s. 92.

s. 93.

s. 103.

P. 279, 280.

P. 36.

Q. 4192, 6378, 6716-27, 6815-6, 6822, 6825-7, 7192.

66. That the inevitable result of this deficiency of privy accommodation is, that the female and infant portions of the population, and the males also in case of sickness, bad weather, &c., are but too frequently obliged to use utensils, locally termed "kits," in the one only room, in which frequently more than one entire family live, cook, eat and sleep, and moreover in one another's presence; that the result of the deficiency of ashpits, into which to empty them, is that these kits, necessarily more or less full of excrement, offal, garbage, &c., have to be kept in these rooms or at the stair-heads or stair-corners for so many hours as may have elapsed from the first use of them until the next going round of the scavenger's carts,—which, as these carts do not go round on a Sunday, of course implies the retention of all the noisome matter collected during Saturday and Sunday till the Monday morning, and obviously must at all times lead to a fearful vitiation of the atmosphere;—that the necessity of occasionally emptying these offensive utensils at other times than that at which the scavenger's carts happen to be making their daily round, habitually leads to their being emptied on to the gully-grates communicating with the covered sewers, or into the open gutters which in many parts do duty as sewers, whence, if in a public street, it is the duty of the scavengers to remove the refuse; but that the unwillingness to carry such a burden, especially in rainy or inclement weather, down several flights of stairs and along entries of considerable length, either to the scavenger's carts or to the public street, as habitually almost leads to their being emptied, sometimes out of the windows, on to the surface of the entries, courts or alleys or elsewhere, there in most cases to remain (no scavenging scarcely taking place in these courts and entries except under compulsion of the Nuisances Removal Act) until exhausted by rain and by evaporation; that in this way, as reported by Mr. Baynes in 1848, "many streets and alleys become "themselves little better than open sewers;" and that in some places the

Q. 2071-2, 2346-7, 4097.

P. 13, 16 & 55.
Q. 2073-4, 4098-9, 4830.

Q. 4967.

Q. 285, 993-4, 2306-9, 2351-8, 4097 8, 4469-72, 4831, 6950-5.

P. 10, 13, top, 16, top, & 57. Q. 375, 995-6, 2071, 3942, 6279, 6292, 6297, 6304-9.

P. 49, 53, 55.
Q. 997-1004, 2086, 2168, 2966, 2986-7, 3079, 3084, 3161, 4362, 4396, 4403, 4829, 4848, 6302-21, 6378.

Q. 2784-5, 3194, 4058.

P. 45, 16 & 53.
Q. 285, 556-62, 1231-3.

* Q. 1573, 1738, 2069-70, 2316, 2696, 2754, 2767, 2773, 2996, 3002-10, 3079, 3087, 3161, 3191, 4002, 4058, 4094, 4103, 4367, 4426, 4828, 4892, 4938, 4892, 4938, 5071, 6894, 7375-6.

continual accumulation of the refuse thus thrown out has permanently raised the road or footway from ten to twenty inches above the natural level, successive door-sills, in one case that came under our own notice, still remaining to attest this gradual rise. Q. 2893,3023, 7318-9, 7350-6,7390-1,7401-5,7552.

That a further inevitable result of the deficiency alluded to is, that, as reported by Mr. Baynes in 1848, every "waste retired space of ground," such as the unoccupied arches of the Railway viaduct, "is used as a privy (and ashpit) by "men, women and children;" that "many of the bye-alleys appear to be used "as common necessaries;" and that cellars and untenanted rooms even are occasionally made use of as such, and as "receptacles for all kinds of filth, "while the upper rooms are fully occupied."* P. 49. Q. 3163, 4101-2, 6383, 6395-8, 6286-316, 6361-5. P. 47. Q. 4039, 7049-50

67. That it has been suggested to us, that the filthiness and unwholesomeness of the habitations and of the vicinity of the habitations in question are owing, not to any neglect of their duties by the landlords, or of their sanitary powers by the Town Council, but to the wilful filthiness of habits and perverse love of dirt exhibited by the inhabitants; that what would elsewhere be called an indifference to filth and an uncleanliness of habits does certainly appear to prevail to a considerable extent in and around Newcastle, even among the middling and better classes; and that among the lower and lowest classes there do appear to be some of the most utterly and recklessly filthy beings that it is possible to conceive,—an infliction considerably aggravated, if not occasioned, by the irruption of Irish on the failure of the potato crop in 1846 and subsequently;—that, where such habits have long been indulged in, it must, of course, require both patience and perseverance to eradicate them, and to introduce better; and that it is scarcely reasonable, on the other hand, to expect even any great efforts at improvement in districts, in which, owing to the excessive destitution of proper domestic conveniences, it would practically be impossible in the long run to maintain a cleanly and wholesome state; that, in the opinion of many witnesses, the filth perpetually recurring in and about the habitations of the poorer classses has, to a very great extent, at least, been owing to the want of proper accommodation; and that, at all events, it would be most unwarrantable to conclude that even the very lowest classes in the town would not, if they could, be clean, seeing that as yet they have never had a chance of being so, nor ever possessed the means for preserving even the barest decency. Q. 1570, 1581-3, 5196, 5238-9, 7426-51. Q. 1844, 1926, 3826, 4007, 4324-5, 4373, 4488. P. 36, P. 275-6. Q. 3114, 3232, 3729, 3759, 7568-86. Q. 3677, 4842, 6924, 7580-6. Q. 5213, 6942-8. Q. 607, 1118-21, 1585-7, 4167. Q. 931, 2237-40, 3150-2, 4055, 4095-6, 4864, 4897, 4990-4, 6947-9, 7162-6, 7580-4. Q. 2593, 4932-41, 5072-4.

68. That the privies and ashpits, which did exist, appear not only to have been frequently in objectionable situations, as before mentioned, but also in objectionable condition, owing to the want of proper emptying and cleansing; that in the early part of 1848, in consequence apparently of a suggestion to the Town Council by the committee of the Newcastle and Gateshead Sanitary Association, a contract for the removal and exportation of the street and market sweepings was entered into between the Corporation and a private individual, who also issued a handbill to the effect that he was willing to undertake the emptying and cleansing of such places by private contract; that the Trinity House, the hospitals and other large establishments, the aldermen and the other wealthier inhabitants of the town, took advantage of this, and made arrangements for the (in some cases monthly) cleansing of such places, and experienced great benefit therefrom; that in 1849 the Medical Committee of the Newcastle and Gateshead Sanitary Association, in their report to Mr. Rawlinson, mentioned "the establishment of this system of exportation of town refuse" as one of the three chief causes, to which they ascribed the lightness of the then recent visitation of cholera; that the contractor, on whose part the operations in respect of these private places were entirely optional and voluntary, gradually restricted his operations to those districts in which they best remunerated him; and that in this way considerable districts remained dependent on the precarious services of farmer's carts; that towards the close of 1852 and in 1853 an increasing difficulty experienced by the contractor in obtaining railway waggons, in which to remove and export the contents of these places, gradually led to a slackening of his operations, even in those districts in which they had previously been remunerative; that during several months anterior to the late outbreak considerable difficulty was experienced, even by those who were perfectly ready to pay for such accommodation, in getting these places cleansed Ante, § 34. P. 274. Q. 7471-4. Q. 7477, 7488, 7492. Q. 7476. P. 42, top. Q. 7307-9. Q. 4142. Q. 6756-7, 7483-6, 7495, 7500, 6783. Q. 2380, 4845, 5227-37, 7169, 7193, 7213-5, 7324, 7341, 7481, 7582-3.

* P. 49, 278 top, 299 bottom. Q. 4992, 6380-2.

and emptied; and that the condition of them generally throughout the borough became uncleansed and bad; and that, on the more active enforcement of the Nuisances Removal Act during the prevalence of the late epidemic, innumerable complaints were made of nuisances arising from this their uncleansed and unemptied condition.

Q. 6399.

9 & 10 Vict. c. cxxi. s. 94.

s. 105.

69. That by the Local Improvement Act of 1846 it was enacted, "That it "should be lawful for the Council from time to time to order all or any of the "privies, ashpits and receptacles for manure and refuse within the borough to "be emptied and cleaned by the respective occupiers," &c., or at their expense; as also "to direct any prosecution at the Assizes or Quarter Session of the "peace for the said borough for any nuisance or offence, whether public or "contrary to any of the provisions of that Act;" that in 1847, Dr. Robinson, as Honorary Secretary to the Newcastle and Gateshead Sanitary Association, publicly adverted to the fact of these powers having been allowed by the Corporation to remain "wholly inoperative;" that the very confined accommodation in many districts in respect of back premises, and the necessity of having to wheel the contents of such places in barrows through narrow lanes and passages, and occasionally even through the houses themselves, by rendering such operations more expensive as well as intolerably annoying, proportionably disinclined the poor to exert themselves to get such operations performed, and rendered it proportionably desirable that the Town Council should exercise their powers of supervision and compulsion in this respect; that the joint use of such places by several families (a thing inevitable in a town so singularly deficient in such accommodation), by causing endless disputes as to the joint defrayal of the expense of such proceedings, threw a further difficulty in the way of the emptying and cleansing thereof, and should have constituted a further inducement to the exercise by the Corporation of their supervising and controlling powers: but that the Corporation do not appear ever at any time to have attempted to enforce the powers in question; and that under these circumstances some of these places appear to have become such utter and intolerable nuisances, that the tenants entitled to use them (and sometimes the landlords) preferred to nail them up and destroy them, and to betake themselves instead to "kits," or to the streets or public privies.

P. 279, 280. Q. 4048, 4055.

Q. 7480.

P. 46, top, 47, bottom.

Q. 2635-40, 2758, 3894-6, 4142, 4445, 7366-70.

Q. 6805. P. 48, bottom. Q. 4447, 4486.

Q. 6728-40, 6400, 4143-5, 2129, 2381, 2737-41, 3196, 3971, 4853.

P. 49, top. Q. 4135-41, 4404.

Q. 2342-56.

70. That a very large proportion (and, as one parochial medical officer computes, two thirds) of the entire population of Newcastle are dependent for accommodation in this respect on the public privies, the property and in the management of the Corporation, some of which are of the rudest and least decent form of construction; that of the twenty-one, which were in existence at the time of the late outbreak, only about ten appear to have been lighted at night at the time of our inquiry; that many of them appear to have been habitually and also at the time of the late outbreak in a highly offensive and objectionable condition; that repeated complaints have been made and memorials forwarded to the Town Council or their officers during a series of years in respect of some of them, not merely as regards their temporary condition, but also as regards the objectionableness of their situations, under the same roof with dwelling and sleeping rooms, &c.; that in 1846 the Town Council, under their Local Improvement Act of that year, obtained power "to make regulations for "the management of public privies"—regulations which, perhaps, are in many places all but indispensable in order to prevent such places becoming public nuisances—but that they do not appear ever to have made any such.

Q. 2076-9, 2331-2, 5071.

Q. 4222-44.

P. 13, Q. 634-5, 2080-4, 2333, 2448, 4871, 5071, 6296-7.

Q. 4148-58, 4207, P. 334.

9 & 10 Vict. c. cxxi. § 109. Q. 1817. Q. 6731-3, 6782, 2113, 2509.

71. That the flagging, paving or macadamizing of the chief thoroughfares in the better and central parts of Newcastle appears to be both good and substantial; but that in the narrow lanes and entries on either side of these thoroughfares, and in many parts of the suburbs, it is decidedly and seriously deficient, both in quantity and quality; that of the 28¼ miles of thoroughfare within the old borough which the Corporation "conceive to be streets," 25¼ miles are stated by them to be either paved or macadamized, leaving 3 miles entirely untouched; and that of the 15½ miles of thoroughfare in the townships, which are "conceived to be streets," 8¾ appear to be either paved or macadamized, leaving 6¾ miles entirely untouched; that of the streets and alleys, &c., which the Corporation thus conceive to be paved, a certain proportion, at least, are paved but very indifferently; while in others, for want of scavenage, the paving is so covered with filth and refuse as not to be discernible, except upon close inspection; that the populous districts of Sandgate and Pandon were wholly,

Q. 402, 1016, 2625, 2643, 2887, 2895, P. 214-6. Q. 3012, 3091, 3701-7, 4293, 4364, 4399-4401, 4452, 4897-4906, 5004, 5190-1, 7374, 7378-9, 7516-20.

Q. 6487-6509.

Q. 6516-24, 1739-41, 2510-1, 3013, 3090-3, 4399, 7350-1, 7380.

and still are mainly, paved with shingle or round stones, having wide interstices between them, so as to render adequate scavenage almost impossible; and that previously to, and at the time of the cholera, there were many places, especially in the poorer and suburban districts of Newcastle, which owing to these circumstances were habitually dirty, and in bad weather almost impassable. Q. 6502-6. P. 12, 15. Q. 299, 630-2, 3238-40. Q. 1027, 2168, 2652, 2892, 4371, 7317-9, 7334-8, 7346, 7356-62, 7376, 7393-1.

72. That "the unpaved, uncleansed and consequently filthy and repulsive "state of many of the streets, particularly of those recently erected in the "suburbs, where whole districts are to be found in this neglected condition," was the third among "the chief preventible causes of the excessive mortality "lately experienced in Newcastle," to which the medical committee of the Newcastle and Gateshead Sanitary Association alluded in their report to Mr. Rawlinson at his official inquiry in 1849; and that the same continued to exercise an unfavourable influence on the sanitary state of the town down to and at the time of the recent outbreak; that by the Local Improvement Act of 1837 it was enacted, "that it should be lawful for the Council for the time being of the "said borough, from time to time, as they should think fit, to contract and agree "with the surveyors of highways for the several townships, &c., for the repair "of the highways of the said several townships, or any of them;" that it was stated by the surveyor of highways for one of the townships that in 1839 one, two, or three of the five townships applied to the Corporation to take the management of their highways, but that the Corporation did not comply therewith; and that the Corporation does not appear to have obtained a full control over the streets and highways of the said townships until the passing of the last Local Improvement Act, about a month before the late outbreak; that as regards the old borough, the Town Council appear to have exerted themselves considerably to improve the paving of the highways, especially in some districts, *e. g.*, Sandgate, and with considerable benefit to the sanitary condition of the districts thus improved; and that, on the average of the sixteen years, 1837-1853, the Town Council appear to have expended (over and above the sums derived from the thorough toll, and from the watching, lighting and paving rates) a sum of 7,000*l.* per annum out of their own funds upon the maintenance and repair of highways, &c., watching, lighting and paving, and in particular appear to have expended out of their own funds (over and above the sums derived from the paving rate) a sum of nearly 560*l.* per annum on paving of highways: but that in respect of the paving of streets, &c., not being highways, they do not appear to have exerted themselves or to have exercised their powers to a similar extent. P. 42. Q. 4056. 1 Vict. c. lxxii. § 6. Q. 6914-22, 6987-8. Q. 6719. 16 & 17 Vict. c. clxxxii. 4 Aug. 1853. Q. 3237, 7294, 7521-7. Q. 6505-6. Q. 2430-1, 7705. Q. 7285-7.

73. That under the Local Improvement Act of 1846, the Town Council obtained power to compel the levelling, flagging and paving of streets, not being highways, at the expense of the owners of the houses, buildings and lands abutting on the sides of those streets; that in 1847 attention was publicly drawn to the fact, that this power had been allowed to remain "wholly inoperative;" that in October 1848, during the then visitation of cholera, a deputation of the Board of Guardians waited upon the Town Improvement Committee "to solicit their "co-operation in carrying into effect the flagging and paving of the streets;" that in 1849, it was intimated to Mr. Rawlinson, at the time of his official inquiry, that "not a single street had been paved under the provisions of that Act;" that in 1850, under another Local Improvement Act, the Town Council obtained amendments of the former compulsory power, and also an extension of it "to "any court, lane, passage or place within the borough, for the time being open "for foot passengers or carriages, having a gate, bar or chain thereon or therein, "or over which any person might have or exercise ownership;" that this latter power appears to have been exercised once, and the former some nine or ten times: but that there still remain a good many streets and places, in respect of which both powers might and ought to have been exercised for the sanitary benefit of the town. 9 & 10 Vict. c. cxxi. § 58-60, and 68. P. 279-280. Q. 6332-4. P. 37, 38. 13 & 14 Vict., c. lxxvii. s. 14 & 19, & s. 20. Q. 6496-9, 6510-14, 6758. Q. 4185.

74. That the scavenage of the borough of Newcastle at large, down to and at the time of the late outbreak, was deficient in the most deplorable degree; that, the Corporation not having taken or obtained control over the highways of the townships until about a month before the late outbreak, no scavenging whatsoever appears to have taken place in them,—notwithstanding the dreadful pollution of the surface arising from the want of proper domestic conveniences,—except under compulsion of the Nuisances Removal Act; that the performance of the scavenage in those parts of the borough to which the faulty system in vogue allowed it to extend, had unquestionably improved, and improved Q. 7534-9, 6922-3. Q. 7543-5. Q. 180-1. P. 45. Q. 2720, 3187, 4703-8, 6622-7, 7325-6, 6745-7.

Q. 182, 1815, 3161, 3227, 3941, 4434.

considerably, of late years, although to this day, as is generally admitted, it is far from adequate; that according to that faulty system, which (though the evils of it have for years been notorious) still existed at the time of our inquiry, the scavenage was confined mainly to the chief thoroughfares of the town, having the better-provided houses on either side, while the bye streets and the private courts and entries, where the miserable destitution of the houses in respect of proper domestic conveniences leads to a diffusion of filth which calls for a redoubled frequency of scavenging, were more or less, and often entirely, neglected, and even considered and avowed to be without the jurisdiction of the scavengers;—they and their carts going round through the main thoroughfares and removing the refuse, which the inhabitants of the adjoining courts and entries may have brought out and deposited in the main thoroughfares, but never themselves going, and even when requested refusing to go, into those courts and entries for the purpose of thence removing any accumulations there existing:—to which we need only add, that an almost impracticable amount of scavenage would have been required to keep in a clean and wholesome state districts which had been suffered to remain so radically destitute of proper domestic conveniences; and that, having already adverted to the total neglect by the Town Council of their powers for the remedying of this radical defect, it would seem idle to dilate on the fact of their having neglected to obtain or exercise scavenging powers for the mitigation of the evils thence arising.

P. 45. Q. 4055.

Q. 998, 1003, 2361-3, 3969, 4002, 4012, 4081, 4086-7, 4160-3, 4298, 4365, 4850, 7326, 7338, 7343-5, 7350, 4369, 7681.

Q. 2870-3, 3228-31.

P. 45. Q. 2721-7.

Q. 288, 633, 999, 1000, 2985-8.

75. That at the breaking out of the cholera, as reported by the joint committee of the Town Council and of the Board of Guardians, October 1853, "accumulations of dung, litter and ashes, mixed with vegetable and animal "refuse," were "collected in various parts of the town;" to such an extent, indeed, in some places, that it was considered dangerous to remove them at that time, and expedient only to cover them with fresh earth; and that even at the time of our inspections there were many parts of the town exceedingly, and some intolerably, filthy from similar causes; that previously to the late outbreak the town does not appear to have been generally or thoroughly cleansed since the cleansing which took place anteriorly to the outbreak of cholera in 1848-9, and which is believed to have materially contributed to render that outbreak in Newcastle so light; that the condition of the town in 1853 in these respects had, in the opinion of several witnesses, materially retrograded since that time, and at all events was by no means a good and creditable condition; and that "the frequent accumulation of masses of decomposing refuse and other "offensive matters," will, no doubt, have been in autumn 1853, what in 1849 it was reported by the medical committee of the Newcastle and Gateshead Sanitary Association to have been in previous years, viz., one of "the chief "preventible causes of the excessive mortality lately experienced in Newcastle."

P. 11, Q. 1782-6, 1814, 1844-5, 1884, 3004, 3014, 4081-8, 4164-7, 4195-7, 4366, 4412-6, 4420, 6321.

Q. 7103-12.

Q. 1198-9, 2989-93.

Q. 3930-6, 4071-4, 6905-13, 7013-5.

Q. 930, 1993, 3340-7.

P. 42.

76. That besides these variable and temporary nuisances there existed but too many almost permanent nuisances on a great scale; that several of the ancient burns, deans or brooks, now converted into sewers, but still only partially covered in, appear to have been complained of as such for years together, and at all events to have deserved so to be; that the general want of house drainage and of proper privy accommodation causes so large an amount of excrement to be mingled with the street sweepings, ashes and other house refuse that, as reported by Mr. Baynes in 1848, the Corporation middensteads, or places to which the contents of the scavengers' carts are conveyed, become themselves intolerable nuisances; that frequent complaints appear from time to time to have been made, not merely as regards the condition, but also as regards the situation of some of these; and that even at the time of our inquiry, one or more of them continued both in improper places and in a bad state.

Q. 3249-71, 3931-121, 5258-79.

Q. 2803.
P. 45, near bottom.
Q. 2791-2803, 4202, 4391.

Q. 6748-52, 4213-21, 4307-10.

Q. 2804-20.

77. That, considering that of the 9453 houses in the borough only 1421 had fæcal drainage, and that of the fæcal produce of these 1421 houses a considerable proportion seems,—especially in dry summer weather, such as prevailed before and during the late outbreak,—to have been retained in the adjacent sewers; thence, but too frequently, to return its noxious gases, either through the untrapped gratings into the general atmosphere of the streets, or else through the ill-fitting water-closets into the houses themselves: considering that the fæcal produce of the remaining 8032 houses (and part of the produce of the other 1421 also) was either stored in open privies, in immediate proximity to the houses, or in kits, within living and sleeping rooms or at stair-corners close beside them, or else was thrown upon the surface, there, in a great measure, to

Ante. § 59.

Ante. § 62.

Ante, § 63.
Ante, § 66.

remain until removed by rain or by evaporation: considering the absence or imperfection of the paving in many of the districts most exposed to the evil last mentioned, and the consequent perpetual soakage and stampage of excrement into the soil, and subsequent re-exhalation of noxious vapours into the air, as well as the constant infiltration into the soil from the almost universally conjoined privy and ashpit: considering the extensive diffusion of fæcal matters on surfaces too well paved to admit of such soakage or stampage to any great extent, and the very general absence of scavenage in the private courts and entries most exposed to such diffusion: considering the, especially just before the late outbreak, generally unemptied and uncleansed condition of the privies and ashpits which did exist, as well as the very general accumulation of offensive matters in places not destined for their reception and elsewhere; and finally, considering the hot, heavy, stagnant condition of the air, which appears to have prevailed about the time of the late outbreak: it will, we think, be obvious, not only that almost the whole fæcal produce of the town during several months was about that time retained in a more or less, but frequently very much, exposed form in the close vicinity of the houses and rooms in which the inhabitants at large were living and sleeping, but also that the whole town may, almost without exaggeration, be said to have been breathing continually an atmosphere of their own excrements; to which must be added that the but too general want even of surface drainage, by allowing superfluous moisture to remain upon the clayey soil, not merely to promote decomposition, but also by its own evaporation to serve as a vehicle for the diffusion of the noxious gases thence arising, will obviously have tended to the aggravation of a state of things, which in itself was already sufficiently appalling.

Ante, § 71. P. 12, 15. Q. 299, 301, 631, 700-2, 1005-6, 3241-4. Q. 1238-43, 1576-8, 3893, 4133, 4770, 6045. Ante, § 74. Ante, § 68. Ante, § 75. and 76. Q. 559-67, 706-18, 956-65, 1238-43, 1659-61, 1672-9. Q. 144-5. P. 12 bottom, and 13.

78. That the joint committee of the Town Council and of the Board of Guardians in October 1853, after alluding to the accumulations above mentioned, reported that "the slaughter-houses are found to occasion or "aggravate many of these accumulations of offensive matter"; that in 1846, under their then Local Improvement Act, the Town Council obtained power "to make bye-laws for making regulations for the registration and inspection "of slaughter-houses and knackers' yards, and for keeping the same in a cleanly "and proper state, and for removing the filth therefrom at least once in every "week," and "to ascertain and fix what pecuniary penalties should be incurred "by persons breaking such laws;" that in 1847 Dr. Robinson, honorary secretary to the Newcastle and Gateshead sanitary association, publicly drew attention to them "as sources of putrefaction and disease," as also to the fact that the powers in respect of them had been allowed to remain "wholly inoperative;" that in 1848 Mr. Baynes reported that "some of these places were very "offensive;" that in 1849, on the occasion of Mr. Rawlinson's official inquiry, the medical committee of the Newcastle and Gateshead Sanitary Association publicly suggested "the registration and sanitary regulation of slaughter-"houses," as one of the "remedies, which they would desire to see applied to "the removal of existing morbific causes;" but that no such regulations appear ever to have been made: and that other nuisances arising from tripe-boileries, bone-dealeries, tanneries, fish-cureries, &c., also existed, for the abatement of which, either at common law or under their own local Acts, the Town Council might, but never have, proceeded.

P. 11, top and bottom. 9 & 10 Vict. c. cxxi. § 109. Q. 4060. P. 279-80. P. 49. P. 42. Q. 6760-1, 2513-5. Q. 7256. P. 13. Q. 3997, 4865-7, 5006-15, 5065. 1. Vict. c. lxxvi. s. 31.

79. That in 1846, under their then Local Improvement Act, the Town Council obtained power "to make byelaws for regulating the manner of keeping swine," &c., and "to ascertain and fix what pecuniary penalties should be incurred by "persons breaking such law;" that in October 1848, during the then outbreak of cholera, such byelaws were made and have since been put in force to a certain, although inadequate, extent; and that the nuisance hence arising has been considerably abated of late years, especially in some districts; that nevertheless very many such were kept improperly, and in contravention of such byelaws, before and during the time of the late outbreak, to the detriment of the public health; that in October 1853 the joint committee of the Town Council and of the Board of Guardians reported that "the practice of keeping "pigs in improper places had been found to be productive of much "annoyance to the inhabitants," but that they had "found the existing "byelaws sufficient to repress the practice;" notwithstanding which it appears that the practice had not been repressed down to the time of our inquiry in March.

9 & 10 Vict. c. cxxi. s. 96 and 109. Q. 6708-9. Q. 2130-1, 2728-41. 3112-7, 5207-10. Q. 6408-9, 2732-6, 6710-1. P. 11. Q. 6709. Q. 7074-9.

80. That since the passing of the Nuisances Removal Act, 1848, and the Nuisances Removal Amendment Act, 1849, the Board of Guardians in Newcastle (who were originally charged with the execution of those Acts there) have possessed powers for the removal of a variety of nuisances, and appear, especially the chairman and vice-chairman and perhaps other members of the board, to have exerted themselves faithfully to fulfil the duties thereby devolving upon them, so far at least as their staff and system would permit; but that the inadequacy of their staff and other circumstances, and their (perhaps consequent) system of passively waiting for complaints of nuisances instead of actively proceeding against them, have prevented all the benefit accruing from their efforts that could have been desired; that in the discharge of these duties they have been in but little, if any, degree assisted by the Corporation, and, on the other hand, have been frequently obliged to issue formal notices against the Corporation, and on at least two occasions have been to the utmost resisted by that body, and have been obliged to summon it before the magistrates, and obtain a decision against it, before it would remove or abate nuisances of its own creation; that by the Local Improvement Act, 4th August 1853, it was enacted that "it should be lawful for the "Council to use and exercise all and every the powers given by the Nuisances "Removal Act, &c., to the guardians of the poor;" but that the Town Council does not appear to have taken advantage of this enactment till some days after the late outbreak reached its climax, and then not in a very active or efficient manner.

Vide Memorial, P. 335.

Q. 6421-2.

Q. 1767-74, 6416-9, 6255-63.

Q. 6332-4, 2483-9.

Q. 6279-6321.

Q. 6323-8, 2490-5.

16 & 17 Vict. c. clxxxii. s. 41.

Q. 6780.

Q. 1769, 1772, 1876-83.

81. That the powers of the Nuisances Removal Act are limited to the removal of nuisances when created, and do not extend to the prevention or anticipation of nuisances by comprehensive measures, and consequently were wholly inadequate to meet the case of Newcastle, in which, for want of such comprehensive measures, the recurrence and re-recurrence of the same nuisance in the same place was matter of almost inevitable necessity; that, in contradistinction to these limited powers of the Nuisances Removal Act, the Town Council, under their Local Improvement Acts, have possessed, ever since 1846, extensive powers for the anticipation and radical prevention of the great bulk of nuisances, by being enabled to provide comprehensive systems of sewerage and drainage, to compel the paving, &c., of private courts and entries, and the provision of suitable domestic conveniences, to introduce proper systems of scavenage, to make regulations for the systematic emptying and cleansing of privies, ashpits, public necessaries, slaughter-houses, &c.; that in 1849, on the occasion of Mr. Rawlinson's official inquiry, the inadequacy of the powers of the Nuisances Removal Act in the case of Newcastle was publicly adverted to; but that (as already stated in detail) the Town Council appear to have made hardly any use whatsoever of their superior powers, except perhaps in times of epidemics: to which we need only add that, of course, no amount of energy displayed under pressure of an epidemic can compensate for the systematic neglect of valuable powers during long intervening periods.

Q. 6267-9, 6390-4.

P. 35, 42.

Q. 696-8, 930-1, 3149-52, 4166-7, 6383-9, 6395-8.

Q. 7298-7310.

P. 35.

P. 46, near top.

Q. 1845.

82. That another very considerable source of detriment to the sanitary condition of the town during the late outbreak arose from the excessive contamination of the atmosphere there, not merely by ordinary smoke, but also by acrid and offensive fumes from alkali and other chemical-product works, factories, &c., of which it is alleged that no town for its size possesses more than Newcastle; that by the Local Improvement Act of 1846 it was enacted "that, from and "after the first day of July 1847, all furnaces employed or to be employed, in "the working of engines by steam, or in any mill, factory, dyehouse, brewery, "bakehouse, gas-works or other buildings used for the purposes of trade or "manufacture within the said borough (although a steam engine be not employed "therein), should be constructed so as to prevent or consume, so far as is prac-"ticable, their own smoke," with cumulative penalties against all persons who after that day should "use any furnace for any of the purposes aforesaid within "the said borough which should not be so constructed as aforesaid, or should "negligently use any furnace so constructed as aforesaid, or should carry on "any trade or business which should occasion any noxious or offensive effluvia, "or otherwise annoy the neighbourhood or inhabitants, without using the best "practicable means for preventing or counteracting such annoyance," and "that "it should be lawful for the Council to cause any chimney or furnace, which "should be rebuilt or erected or continued contrary to the provisions of that "Act, to be taken down or altered" at the expense of the owner; that, in 1847

P. 12, top.

Q. 1474.

Q. 4060, 4051.

9 & 10 Vict. c. cxxi. § 89.

§ 106.

P. 279, bottom.

and 1848, during the pressure of the Irish fever epidemic, some efforts appear to have been made to enforce the first of these enactments, and in two or three cases at least with success; but that difficulties in enforcing it were experienced, as might have been expected, especially where some of the magistrates and of those charged with the execution of the law were themselves among the greatest offenders against the law, and that it was not effectually enforced; that from 1848 downwards, as complained of and admitted at the time of Mr. Rawlinson's official inquiry in 1849, the powers, instead of being carried out, have been left entirely in abeyance; and that the smoke and noxious effluvia, instead of decreasing, have progressively increased; that, in respect of these powers also, it has been suggested to us that they were not strong enough; but that, on the other hand, it has not been even alleged that, since the first enforcements in 1847 and 1848, any other efforts have ever been made to apply them even to those cases for which they were unquestionably available.

Q. 6762, 7086-8.
Q. 1476, 4076, 6903-4, 7089.
Q. 3272, 6763-4.
Q. 3273, 4191.
P. 37, 38, Q. 6899.
Q. 6765.
Q. 1477.

83. That at the outbreak of cholera in 1848-9 the state of the churchyards in Newcastle was such that one of them was regarded by one medical man as "the "monster nuisance" of the time; that in December 1849, at the time of Mr. Rawlinson's official inquiry, the vicar of Newcastle stated that they were generally too full; and that before and during the late outbreak they were in very bad condition, and accordingly were shut up as soon as possible after its commencement.

Q. 3723-5.
P. 43, 189, bottom.
P. 10. Q. 4046-50, 4375, 4463-7.
P. 59, 71.

84. That the water supplied to Newcastle by the Whittle Dean Water Company for about two months before, and also during the rise and progress of, the late epidemic appears to have been almost universally complained of,[1] and is variously described* to have been "bad," "very bad," "extremely" or "shockingly bad," "much discoloured," "turbid," "perfect puddle," "highly objectionable," or "unfit for drinking," &c.; that many people felt obliged to give up[2] using it themselves, and that several medical men felt themselves called upon to dissuade their families or patients[3] from using it; and that the first step[4] taken by the committee of the Town Council and of the Board of Guardians during the late epidemic was to endeavour to obtain a purer supply; that many witnesses have deposed to its having had a disagreeable taste, and that several have sworn most positively to its having had an offensive smell,† as though containing putrid organic matter; while others‡ on the other hand have declared that they never noticed anything beyond discolouration, as from peat, or turbidity, as from clay or sand,—a conflict of evidence, which, notwithstanding the impartial and undiscriminating operations of the Water Company, inclines us to imagine that, from some local and no doubt wholly unsuspected circumstances, the water drawn for use was not alike in all parts of the town; especially as more than one witness has pointed to the western parts as those in which the complaints were loudest and the water worst: to which we would add that the water from some of the wells and springs, usually reputed excellent, is also stated to have become temporarily offensive during the late outbreak.

[1] Q. 148, 577-80, 971, 1359, 2709, 3122, 3277, 4928-30, 5024.
[2] Q. 1620, 2021, 2393, 3363.
[3] Q. 974-8, 2024-30, 2394, 2402, 3127-8, 3920.
[4] P. 10.
Q. 5403, 5773, 5776.
Q. 971, 2029, 2932, 3938-9.
Q. 2096-9, 4259-60, 4304-6, 5185, 5827, 5833-7.

85. That owing to the water supplied by the Water Company having been compounded of about one third of Tyne water and two-thirds of Whittle Dean water, and to the fact that no analysis was made of it, we are unable to state exactly what the constitution of the compound was; and that, on this head, we can only refer to some more or less trustworthy analyses of the separate waters, and to the analysis of a somewhat similar compound supplied in 1850; that during the prevalence of the epidemic it was unquestionably supposed and stated that the use of it had produced, or aided to produce, diarrhœa, &c.; that, before the cholera broke out, diarrhœa and dysentery did prevail to a considerable extent after it began to be supplied; that several medical men have stated to us their opinion that it did produce diarrhœa in other people, although they could not directly trace and prove it, while one or two have distinctly declared that they believe it produced diarrhœa

Q. 5759-71, 5764-6.
P. 564-5.
Q. 5942-50, 5970-9.
P. 69, 70.
Q. 1359, 2398, 3372-4, 5035.
Q. 47, 2398-2401, 3621, 5807.
Q. 31-8-30, 3279, 3787-8, 4024-3.

* Q. 151, 855-63, 1098-1100, 1619, 1954-5, 2018, 2094, 2388-91, 2932-5, 3124, 3278, 3358, 3377, 3489-91, 3732-40, 3876-7, 3917, 5033, 6140.

† Q. 2018-20, 2029, 2095, 2392-8, 2409, 3279-91, 3316, 3360-5, 3818-22, 4015-9, 4024-6, 5026-31, 6117, 7216-21.

‡ Q. 979-82, 1105-10, 1360-9, 1622-6, 2710-5, 3490, 3623-33, 3365-70, 3735-6, 4253-5, 4931, 5457, 5636-43, 5775, 6099, 6133-50, 6957-60.

Q. 3292-4, 3308-, 3360.

in themselves, and that they could trace that effect to the use of it; but that others have as distinctly declared, that they did not believe it had had any such operation; that, in the absence of chemical and microscopical analyses made at the time, we cannot arbitrate between these conflicting assertions; that, if we accept without reserve the statements as to the water having contained fœtid organic matter, we cannot doubt that it would have been the tendency of such water to produce diarrhœa, and very grievously to aggravate whatever epidemic diarrhœa or cholera then prevailed; that—setting aside these statements as contradicted, and confining our attention to those qualities of the water, as to which the witnesses are generally agreed—we cannot but come to the conclusion that the water was such as ought never to have been distributed; and that, on the most favourable view we can adopt, it must be regarded with grave suspicion in relation to its influence on the late outbreak.

Q. 272-3, 876-81, 1101, 1371-81, 1959, 2404-5, 3276, 3279, 3283, 3822-3, 4027, 4252.

86. That the water usually supplied by the Company appears to be hard, varying, perhaps, from eighteen or twenty degrees of hardness in seasons of extreme drought to five or six degrees, perhaps, in seasons of extreme rain, and, at the time of our first visit to Newcastle in January, was hard enough to attract our attention almost every time we used it; but that the waters of the neighbourhood appear generally to be hard, and that it has barely been suggested that any softer could have been obtained; that no filter has existed hitherto for the filtration of the Whittle Dean water, and that this appears to have given rise to an occasional (but, we believe, unfrequent) muddiness of it, such as occurred once within our own experience in March; but that, save in these points, the water appears to have been usually and habitually good, and to have been administered on the principle of constant supply, and in both these points and otherwise to have been an immense improvement on the previous supply, which was wholly derived from the Tyne, and administered on the intermittent principle.

Q. 254, and Analyses No. 1 and 2 there. Q. 5764-6, 9020.

Q. 5983, 9021-5.

Q. 1093-7, 3667, 7051-70, 9028-9, &c.

Q. 5713-8.

Q. 152, 854, 2093, 4019.

Q. 5454, 9026.

87. That, so far as we can judge, no complaint, or cause of complaint, would have arisen against the Water Company but for certain operations, whereby they so reduced their store of water as to be incapable of maintaining their supply, except by recruiting that store from the waters of the Tyne; and that in our opinion the deterioration of the quality of the water supplied by them was mainly or entirely the result of their improper reduction of the quantity of it; that the Company, having in their prospectus dwelt upon the then general complaints against the Tyne water as unfit for the supply of the town, and having been supported and established (adversely to the old company, whom they superseded) on the faith of their procuring a much better supply, ought to have been very chary of all such operations as might by any chance risk the necessity of returning to so universally condemned a source; that the works by which they drew the water from the Tyne were those of the old company, unaltered and by long disuse probably not improved: that the filter in particular, constructed in 1836, should seem to have been in some way out of order or of repair, and at all events far from adequate properly to perform the duties thus suddenly rethrust upon it; that, notwithstanding the deficiency of house-drainage in Newcastle, and the long retention about the houses of a large proportion of its fæcal produce, a certain proportion of sewage and of other pollutions does ultimately find its way into the river, and some of it into the immediate vicinity of the spot whence the water was drawn by the Company—circumstances which at first might seem to afford one way of accounting for the occasionally putrid smell deposed to by several witnesses; but that the sewer discharge in question takes place at a point below that at which the Company pumped from the river, and that all the officers and servants of the Company, whom we examined, concurred in declaring most positively, that no pumping had occurred except at periods of the ebb, when they conceived it to be impossible that the portion of the stream, from which they pumped, could in any degree be contaminated with the sewage or other impurities thence discharged; and that hence we hesitate to affirm that the explanation thus suggested is the true one:—to which should be added that, although the annual mortality of Newcastle has not been proportionate to the use or disuse of Tyne water *per se*, it is matter of history that, in the two cases in which cholera has raged violently in Newcastle, viz., in 1831 and 1853, the water supply has (owing to a sudden failure of other sources) been more or less derived from the Tyne, and that in the third case, in which the supply of better water continued

Q. 5455-6.

P. 60.

Q. 4256-9, 5324-7, 5653-61.

P. 10.

Q. 5985-91, 5998-6004.

P. 24.

Q. 5814-22.

Q. 75-6, 100-4.

abundant, viz., in 1848-9, the outbreak of cholera was light and mild; and further, as a coincidence, if nothing more, that on the fifth day after the company ceased to draw from the Tyne, and within a still shorter period after the time when all admixture of Tyne water in the pipes and reservoirs of the Company will by perpetual dilution have passed away, the late outbreak of cholera did certainly commence a rapid and never-checked decline. Q. 92-5. Q. 155-6, 1964, 3131-6.

88. That the Whittle Dean Water Company obtained its first Act in 1845, on the basis of a drainage area of nearly 3,600 acres, and a reservoir capacity of 215,000,000 gallons, which at the then rate of consumption (700,000 gallons per diem) afforded storage for 307 days' supply; that its original works were completed in 1848, by which time the daily consumption had risen to 1,000,000 gallons, and their reservoir or storage capacity fallen to 215 days' supply; that in 1850, the daily consumption having increased to 1,500,000 gallons, and their storage capacity fallen to 143 days' supply, their water signally failed them, so that they were obliged to eke out their store by pumping from the Tyne; that thereupon the Company voluntarily and without delay proceeded to make arrangements with the landowners for making a cut to the river Pont, whereby to increase their drainage area from 3,600 to 4,600 acres, and to obtain an additional supply from the Pont, whenever that stream rose beyond the level required for the purposes of the millowners on its banks, as also for increasing their reservoir capacity from 215,000,000, to 330,000,000 gallons; that these additional works were completed in September 1851, and their storage capacity thereby raised, the daily consumption having by this time risen to about 1,700,000 gallons, to about 196 days' supply; that in the early part of 1853 the daily consumption had increased to nearly 2,500,000 gallons, and their storage capacity fallen to about 132 days' supply; that at this time they had had experience in 1849 of 100 days of drought (or of weather in which so little was flowing into their reservoirs that they might be regarded as wholly dependent on their storage), in 1850 of 212 such days, and in 1851 of 118 days—1852 being a decidedly exceptional year—; but that, notwithstanding this experience, and notwithstanding that their storage had so signally failed them in 1850, when they had a capacity for 143 days' supply, they nevertheless in 1853, when they already had a capacity for but 132 days' supply, voluntarily proceeded to extend their range of supply some way down the river; that the first instance of such extension took place on the 26th May 1853, to a factory, which consumed nearly 1,000,000 gallons a week; and that on the 5th July 1853, within 40 days or less than six weeks from this first instance of extension, they had so far reduced the amount of their storage as to be compelled to begin to pump water from the Tyne in aid thereof. Q. 5300-10. Q. 5301-11. Q. 5313-23. Q. 5328-9. Q. 5330, 5347, 5470. Q. 5363. Q. 5372-5, 5387-8. Q. 5574-6. Q. 5518-9. Q. 5577-88, 5589-96, 5522, 5378-80, 5435, 5536. Q. 5367-9. Q. 5370. Q. 5417-20. Q. 5382.

89. That the amount of rain-fall in 1853 was 20·5 inches, as compared with 17.68 inches in 1850, 21·33 in 1851, and 34·7 inches in 1852; that, even if these figures could, as we think they cannot, justify the Company in regarding 1853 as a year of unusual drought, the accidents of droughty seasons are precisely among those, against which a Water Company is bound to provide; that it is further true that a considerable diminution of their storage was occasioned by an accidental subsidence of the soil beneath an old reservoir, owing to the excavations of the earth below by colliery workings; but that, as similar accidents had happened there more than once before, and might be regarded as by no means improbable under the circumstances, this ought to have been provided and allowed for; and that the range of supply ought not to have been extended, as though such accidents were wholly unlikely or impossible; that the Water Company have further stated that they were misled by their expectations as to the amount of water derivable from one source, which expectations, however, they do not seem to have had any experience to justify; and further, that the increase of consumption during the past year was greater than the increase of the range of their supply would have led them to expect; but that, after allowing all due weight to these statements and considerations, we are of opinion that the extension of the supply beyond the amount of 2,000,000 gallons per diem was an extension of questionable propriety, and the extension of it beyond 2,500,000 gallons per diem was unquestionably most injudicious and improper, at all events until some further sources of supply should have been obtained: to which should be added that we in no degree impute to the Water Company any wilful or intentional recklessness in respect hereof, but merely an insufficient consideration of the manifold risks and contingencies before them. Q. 5380. Q. 5436. Q. 5383-4. Q. 5385. Q. 5432-3, 5572, 5603-7. Q. 5562, 5572-3, 5608. Q. 326, 5428-34, 5513-6, 5562-4, 5571, 5599-602.

Q. 5730-6, 5757-8. Q. 5305, 5372, 5387. Q. 5738-44, 1324-35, 2091-2, 2967-71, 5701.

90. That the water supply to the inhabitants of Newcastle, though by no means adequate either in extent or form, is still considerable, and under the auspices of the existing Company has increased nearly fourfold in little more than eight years; that in some of the poorer districts it is more deficient than elsewhere, but that no blame appears to attach to the Water Company in respect hereof, who, both as regards reasonableness of rates and willingness to defray the expense of pipe-fitting, &c., in respect of tenemented property, appear to have afforded the inhabitants very considerable facilities; and that the blame hereof attaches partly to the owners of the house property in question, and partly to the Corporation, who, while averse to the application of the Public Health Act, which would have empowered them to compel landlords to do their duty to their tenants, in respect of providing them with a proper water supply, have nevertheless neglected to obtain, under any of their own local Acts, similar powers of control over negligent and mercenary landlords.

Q. 1336-7, 1343-55. Q. 348-57, 420-2. Q. 1336-7, 1343-55.

Q. 6064-9, 6223-40. Q. 6171-3, 159, 160-5, 1112, 1382, 1627, 2032, 2318-21, 3379, 3499, 3672, 5126. Q. 160, 166-71, 872-3, 1113-5, 1383-8, 1628-30, 3319, 3322, 3500, 4289-90, 5127. Q. 170, 172, 1116, 1389, 2033, 3325, 3673, 5128.

91. That the gas supplied to the inhabitants of Newcastle, although described by two witnesses as of average quality, has been much complained of by many others as "far from good," "bad," "very bad" "very impure," &c.; that the impurities evolved into the atmosphere during the combustion of such a gas, especially in the case of persons exposed thereto in shops or rooms not adequately ventilated, may otherwise have been detrimental to the general health; but that no evidence has come before us to show that it aggravated the late epidemic in any degree.

Q. 6211-3.

92. That other causes, original or aggravative, of a general nature, such as the consumption of unwholesome food, bad fruit, excessive drinking, &c., will also have been in operation in Newcastle as elsewhere under such circumstances, but that we do not think it necessary, in the present case, to dwell at any length on matters such as these.

Q. 4343, 1936. Q. 6860. Q. 2671, 2676, 2680, 3601. Q. 904, 2670, 3602, 3848. Q. 4344.

93. That the late outbreak was also no doubt further aggravated by circumstances, in a correct appreciation of which the powers and proceedings of the General Board of Health, the conduct of two of the Superintending Inspectors of that Board, the operations of the Board of Guardians in Newcastle, the dissensions between certain members of the medical profession there, and divers other considerations are involved; that one of the complaining witnesses frankly admitted that he felt called upon to complain of the circumstances, without professing to know exactly who might be to blame in respect thereof; but that some have distinctly complained of the General Board of Health,—affirming that Newcastle would have done better without any interference on the part of that Board, and that the arrangements adopted in 1831-32, and 1848-49, when the General Board did not interfere, were superior to and more effective than those adopted in 1853, when they did—; while others have accused at least one of the Superintending Inspectors of that Board of incompetency or inefficiency, and others again have made similar imputations against the Board of Guardians; and that accordingly we have thought it requisite to go into an investigation of these matters.

P. 69, near bottom. Q. 902-3, 3389-91, 4432. P. 74. P. 74, Q. 492-3, 3415-7, 4333-4. Q. 74-5.

94. That one complaint against the General Board of Health is, that they were tardy in acting on an intimation that was given them of the approaching outbreak; but that the facts of the case on this head appear to be as follows:—that on the 2d September 1853, a single medical practitioner of Newcastle wrote to the General Board, stating that "the town was threatened by an outbreak of "the disease in a malignant form," in support of which statement he alluded to one "fatal case" of cholera and another case of "choleraic symptoms, indicating "a fatal termination;" that some days previously, viz., on the 30th August, the General Board had directed inquiries to be made into several cases of cholera in different places, and in respect of those in the metropolis had ascertained that the disease was not epidemic there; that the receipt of the letter above-mentioned on the 3d September, did not, therefore, necessarily convey to their minds the conviction that the disease was epidemic in Newcastle, and that they did not immediately despatch any officer to that place, although the minutes and correspondence, hereto annexed, will suffice to show the immediate activity of their proceedings; that on the 9th September a second intimation of the existence of cholera in Newcastle having been received, they at once despatched Superintending Inspector of Health, Mr. Grainger, to that place, who arrived there at six a.m. on Saturday the 10th; and that, having on the same 10th September

received a short telegraphic despatch, and on Monday the 12th a letter, from him to the effect that cholera was epidemic in Newcastle, they, on Tuesday the 13th September, addressed a formal communication to the Privy Council, submitting that the time had arrived for issuing an order in Council for putting in force the extraordinary powers of the Nuisances Removal and Contagious Diseases Prevention Act, 1848; and on the 16th received a copy of the order in Council issued the previous day. P. 75-6. P. 77.

95. That another complaint against the General Board, or rather, perhaps, against its Superintending Inspectors, is that they addressed themselves too exclusively to the Board of Guardians and to the district medical officers, the servants of that Board; that reiterated complaints have been founded on the fact that the medical profession of Newcastle as a body were never called together, either by the officers of the General Board of Health or by the Board of Guardians, until after the epidemic had reached its climax; and that, so far as we can judge, the want of concert between the officers of the General Board of Health and the Board of Guardians, on the one side, and of the medical practitioners and other influential inhabitants of the town at large, on the other, did lead to circumstances adverse to the most effectual repression of the outbreak, and did in so far tend to aggravate it; that, on the other hand, the powers of the General Board of Health have reference to, and invest their officers with authority over, Boards of Guardians only; that all applications by them to the medical practitioners or other inhabitants of a town are consequently matters of discretion; and that some of the complaining witnesses have admitted or intimated that such a step fell rather within the province of the active body, the Board of Guardians, than of their counsellors and supervisors, the Inspectors of the Board of Health; that there existed in Newcastle notoriously a schism between considerable sections of the medical profession there, which to this day renders it doubtful, in our eyes, whether the cordial co-operation of the profession at large could very readily have been obtained either by the officers of the General Board of Health or by the Board of Guardians; that the first step taken by Mr. Grainger was to call upon, and to put himself in communication with, as many members of the profession as possible; but that in the course of this proceeding observations were made to him and circumstances relative to this schism were brought to his knowledge, which were calculated most seriously to perplex and embarrass him in the execution of any such step as the calling together the whole medical profession; that Mr. Grainger accordingly did not think fit to take the initiative in respect of any such step, although he expressed his willingness to be present at any meeting of the profession which might arise out of any other circumstances; that, considering the immense pressure of the crisis, and the unimportance which such a discretionary point would naturally assume in his eyes, as compared with the discharge of other specific and imperative duties, and further considering the known and admitted character of Mr. Grainger, we see no reason to impute any blame to him in respect of this omission, more especially when we consider what actually befel Superintending Inspector Dr. Gavin, when at a later period he judged it proper to do what Mr. Grainger previously had not thought necessary. Q. 4338-42, 4032-4, 4041. Q. 3142, 3385-7, 4028, 4036-7. Q. 4312. Q. 442-5. Q. 464, 1850, 3507. Q. 1401-3, 901, 4337, 3843. Q. 1848-9. P. 52, 57. Q. 436-41, 503, 528. Q. 516-27. Q. 1404-6, 1849, 2036-42, 2882, 2943, 4028. Q. 481, 514-5. Q. 513, 1939. Q. 1939. Q. 1847-8, 1936-7, 3763-5, 4030-1.

96. That it has further been complained that the officers of the General Board of Health, or the Board of Guardians, or both, were blameable in respect to the delay which occurred in the organization of the system requisite for the repression of the outbreak; in respect of the employment, in carrying out that system, of medical students, not natives or inhabitants of the place; in respect of an alleged non-publicity of the arrangements made for such carrying out thereof; in respect of the tardy provision of tents or houses of refuge for the inhabitants of the worst affected districts, and of the non-provision of hospitals for those already attacked by the disease; in respect of the non-issuing until too late of a prescription or formula for the treatment of the disease in its various stages, &c. &c.: that, in respect of one of these points at least, viz., the delay and tardiness, &c., it seems clear, that neither the General Board nor their Superintending Inspectors were legally authorized to require or compel the Board of Guardians to adopt any steps whatever for the repression of the epidemic until after the issuing of the requisite Order in Council;—the fact of the issuing whereof was only communicated to the General Board in London on the same day (the 16th September) on which the epidemic Q. 445-9, 469, 499-502, 1846, 2667, 2675, 3292-3. Q. 457-8, 508-10, 529, 1408-9, 1846, 2672, 2675, 3399-3402. Q. 467-8, 2261-74, 3395-9, 3403-8, 3428-30, 4344. Q. 470-4. P. 59-60, 70, 72. Q. 2668. Q. 477, 484, 2668. Q. 451-6. P. 69. Q. 2678. Q. 445-8, 458-61, 469. P. 77.

reached its climax in Newcastle;—and that the blame (if any) of any delay in carrying out the recommendations of the Superintending Inspector attaches, up to that or the following day, to the Board of Guardians only; that in respect of a second point, viz., the non provision of cholera hospitals we are of opinion that the complaints are by no means well-founded, the benefits of such establishments being, in the judgment of those who were responsible for such non-provision, not only not clearly demonstrated, but rather perhaps gainsayed by experience hitherto; that in respect of two or three others, viz., the non-issuing of a fixed formula, the employment of medical students, not connected with the locality, as house-to-house visitors, and the alleged non-publicity of the arrangements, we are very much in doubt whether there be any ground of complaint whatsoever: and that after giving our best consideration to all, and while reporting that some of the circumstances alluded to did operate in a manner adverse to the most effectual repression of the disease, we see no cause for censuring the officers of the General Board of Health or the Board of Guardians, or either, in respect of any of them.

Q. 504-7, 3848.

Q. 432-49, P. 52-61. Q. 450-84, P. 63-73. Q. 485-93, 494-529, 1846. Q. 195-8, 496-8, 512, 901-2, 1051-3, 1136, 1410-9, 1636-41, 1969-71, 2034-5, 2178-81, 2878-82, 2924-8, 3506-7, 3763-7, 3843, 4028. Q. 432-3, 1726-7. [1]P. 467-8.

97. That the reports and statements of the proceedings of the officers of the General Board of Health, hereto annexed, will, we think, suffice to show that they performed their duties diligently and conscientiously; that many of the most eminent medical witnesses before us unequivocally testified their approval of their efforts and services; that, so far at least as regards Dr. Gavin, (whose stay in Newcastle was protracted for weeks, whereas Mr. Grainger's health permitted him to remain but ten days in the place,) the testimonials hereto annexed[1] from the Board of Guardians, and from forty-seven medical practitioners in Newcastle, will no doubt be regarded as conclusive; whilst, as regards Mr. Grainger, in addition to what may be inferred from the latter of the above testimonials, it appears, not only that his exertions there were such as severely to affect his health, but also that during the time of those exertions he was more than once publicly complimented by one member of the medical profession, who has since been among the most active complainants in the matter; and that, although in looking back on such a crisis it is easy to imagine that the Board of Guardians might have acted somewhat differently with advantage, we see no reason for withholding a similar testimonial to their intentions and endeavours.

Q. 494-5. P. 68, Q. 495-8, 512.

P. 53. Q. 482-3, 1842-3.

98. That in our judgment the true explanation of the untoward circumstances which have given rise to all the complaints under consideration, must be sought for partly in the (owing to the extraordinarily bad sanitary condition of the town) exceeding suddenness and vehemence of the outbreak, and partly in the difficulties and embarrassments arising out of the disunion among the medical practitioners; that on the 1st September the first death from cholera occurred there; that on the 3d September a first, and on the 9th September a second, intimation of the approaching outbreak reached the General Board of Health; that at six a.m. on the 10th September Superintending Inspector of Health, Mr. Grainger, arrived in Newcastle, and about noon the same day informed the General Board by telegraph that cholera was epidemic there; that on the 16th September, the General Board of Health in London obtained a copy of the order in Council of the previous day, putting in force the extraordinary powers of the Nuisances Removal and Contagious Diseases Removal Act; but that on that very day, the 16th, the outbreak had already reached its climax in Newcastle, and within four days afterwards was largely on the decline; that in the meantime Mr. Grainger, finding himself without authority, and having been made aware of the disunion among the medical practitioners, and of the embarrassments not unlikely to be thrown in the way of any discretionary proceedings on his part, confined himself strictly to the line of his imperative duties; that, on the other hand, the medical practioners, informed of the presence of an officer of the General Board of Health, but uninformed as to his want of power, looked to him to take the initiative in some energetic repression of the disease, by the exercise of an authority with which he was not invested; and that in this way, without any blame being imputable to him in respect thereof, the presence of Superintending Inspector of Health, Mr. Grainger, may have served to discourage efforts which might otherwise have been made, as in previous outbreaks they had been made, by the medical practitioners and other influential inhabitants of the place, for resisting the advances of the epidemic.

Q. 1402, 1411-4, 1933, 2179, 2882, 3139-41, 3393. P. 145.

P. 74, 75.

Q. 432.

Q. 491.

Q. 458-63, 474, P. 77.

Q. 1759. P. 145, 474.

Q. 1415-8, 2677, 4029, 4038.

99. That from about the 21st of September, in addition to various kinds of charitable assistance previously in operation (under the auspices of the Board of Guardians and otherwise) for affording relief to persons affected by the epidemic, an extensive system of house-to-house visitation (especially for the discovery and treatment of premonitory diarrhœa) began to be worked under the direction of Superintending Inspector of Health Dr. Gavin; and that it is impossible to doubt that this must have contributed to the mitigation of the disease; but that, inasmuch as the epidemic had already, on the 16th September, attained its maximum, and had in the five following days so far declined, as to have reduced its daily quota of deaths from 114 to 67, we cannot speak with confidence as to the degree of good, which may have resulted from measures adopted during the natural subsidence of the disease.

Q. 1846, 1860, 1933.

P. 145, 474.

100. That the only other point to which we think it necessary to draw attention in respect of Newcastle, is the exceeding waste of money (to say nothing further of life, health, &c.) which has resulted, under this recent outbreak, from the neglect of sanitary powers and precautions there; that during the prevalence of it an expense of nearly 4000*l.* appears to have been incurred by the Board of Guardians for immediate services; that between 6,000*l.* and 7,000*l.* appear to have been expended under the supervision of the vicar of Newcastle; that an excess of at least 3,000*l.* above the usual expenditure for sick and funeral monies appears to have been incurred by the benefit societies of the place; that 500*l.* was expended by the Town Council; that an annual expense of about 2,600*l.* has been incurred by the Board of Guardians for the maintenance of widows, orphans, and others on account of the cholera become chargeable to the poor rates, which at only eight years' purchase would be worth some 21,000*l.*; making altogether an expense of 35,000*l.* or thereabouts, over and above the apparently very serious, but not so obviously computable, loss to the town arising from stoppage of trade, &c.; that the judicious expenditure of a similar sum a few months before the outbreak might have done much to avert or mitigate that calamity, not only for the year 1853 but for many years to come; whereas, under actual circumstances, there has been nothing but a dead loss of so much money, without the slightest defence or guarantee having been obtained against the recurrence of a similar calamity, even in the autumn of this very year 1854, supposing the cholera should again make its appearance in the neighbourhood during the summer.

Q. 4624-6.

Q. 7144-59, 7230-42, 7314, 5306-43.

Q. 6429-34.

Q. 1858-60.

Secondly, as regards Gateshead:

101. That we have received most valuable assistance from Mr. Kell, the Town Clerk and Clerk to the Local Board of Health there, and from Mr. Hall, the Town Surveyor and Surveyor to the Local Board, from Mr. Wilson, Union medical officer, from Mr. Clephan, and from others of the authorities and inhabitants of Gateshead, and have found them anxious in every way to promote and facilitate the inquiry entrusted to us; and that we would particularly draw attention to the cholera map prepared by them, a lithograph whereof is appended hereto, and an inspection whereof, as elucidated by the evidence annexed, can hardly fail to throw a striking light upon the subject of that inquiry.

Q. 8038-9, 9967-8.

Vide specially Q. 8039-8396.

102. That the town of Gateshead, separated from that of Newcastle by the river Tyne only, is mainly situated on a steep slope ascending from that river, in some places with great abruptness, and at the southern extremity of the borough reaching a height of 500 feet; that the great bulk of the town lies at a very considerable elevation, the lowest thoroughfares, those immediately along the verge of the river, being from 4 to 5 feet above spring tide high water, and the whole affording remarkable facilities for sewerage, ventilation, &c.; that, except in respect of the clayey nature of the surface-soil, we know of nothing at all unfavourable in its natural position or circumstances, and see no reason whatever why Gateshead also should not be a very healthy town; and that as, in a sanitary point of view, at least, the two towns virtually constitute but one, and as much of the evidence taken in respect of the one would appear to be, in the main, equally applicable to the other, we propose to shorten our Report relative to Gateshead by occasionally referring back to what has already been reported in respect of Newcastle.

Q. 8840-6, 9507.

Q. 8847, P. 522.

Q. 8848-57, P. 522.

Q. 8858-62.

Q. 7809-15, 8863-74, 9509.

Q. 7863.

103. That the epidemics, which of late years have visited the town of Gateshead, have generally and substantially been coincident, in point of time, nature, severity, &c., with those which have prevailed in Newcastle.

Q. 7734, 7959, 9526.

104. That the mortality among every thousand inhabitants of the borough of Gateshead—excluding that small part of the chapelry of Heworth which, at the time of the Reform Act, 1832, was added to the parish and previous municipal borough to make up the present Parliamentary borough—has, according to the returns furnished to us by the Registrar General, been as follows :—

Q. 7726.

Years.	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853
Deaths per Mille.	28	33	29	27	30	24	23	39	30	25	35	25	30	30	47

and that the mortality among every 1000 inhabitants, on the average of these 15 years, has been 30·1 per annum.

105. That, bearing in mind the great sanitary capabilities of Gateshead, we cannot doubt that this actual annual death-rate is at least double the natural or necessary death-rate of the place; that, on the assumptions previously made with regard to Newcastle, and supposing the population of Gateshead during that period to have averaged 20,000, it would follow that, on the average of those 15 years, some 280, 300, or even 320 lives have annually been sacrificed in Gateshead, owing to the artificial aggravation of natural diseases; and that, considering the number of not fatal cases which must have occurred for each of these fatal cases of artificially aggravated disease, even the above figures will convey but a faint idea of the afflictions entailed upon the inhabitants by the absence of proper sanitary arrangements: in contemplating which, however, it is but fair to remember that Gateshead did not become a Parliamentary borough till the year 1832, that it had no governing municipal body till 1836, that the Local Board of Health there were not constituted nor empowered till 1851, and that they have had no funds beyond what they have been enabled to obtain from special rates.

Ante, § 7.

Ante, § 8.

Q. 7724.

Q. 7725.

Q. 7728, 8659-61.

Q. 9957.

106. That, during the late outbreak of cholera there, 433 persons perished in a few weeks out of a population of 26,000 or thereabouts, (24,805 at the census of 1851, excluding 763 in the portion of Heworth chapelry), being a mortality of about one in sixty during that short period; that the mortality in nine considerable streets or groups of streets—which, together, comprise the greatest part of Gateshead—appears, from a tabular statement prepared by Mr. Surveyor Hall, to have been still higher, and to have varied from one in 48·5 to as high as one in 19·5; as many as seven persons out of about 120 being stated to have died in one block of buildings, three out of thirty to have died in one house, and even as many as three deaths to have taken place in the cellars of another single house.

P. 511, Q. 9279-86.

Q. 9965.

Q. 8896.

P. 522, Q. 9314-21, 8050-1, 8182-4, 8604.

Q. 8277-8.

Q. 9293-9.

107. That the late outbreak of cholera in Gateshead, though unquestionably more extensive, is not alleged to have been more fatal or more malignant than the previous outbreaks of the same disease there, nor to have differed much from them or from other epidemics, either in respect of the classes of people it attacked, or of the districts in which it first broke out, or in which, especially, it localized itself, or generally in respect of the laws which it appears to have followed; that, on the contrary, it is admitted to have prevailed most virulently just where any person, competently acquainted with the sanitary state of the town, would have predicted; that the epidemic influence, to which the whole population throughout the town appears to have been exposed, was comparatively innocuous in the better parts; that, in some of the best parts, there was no mortality at all; and that the mortality was almost exclusively confined to the poorest classes and to the worst districts; that of the 433 persons who perished only 29 were ratepayers or members of the families of ratepayers, and that of these families some were living in notoriously unhealthy localities; and that, whilst the mortality among the population at large was about one in 60, that among the ratepayers and their families was only one in 300; that no instance appears to have occurred of two or three deaths taking place in any block of houses not presenting obvious sanitary defects; that the virulence of the disease was certainly aggravated by the bad sanitary condition of the respective localities; and that,

Q. 7745-50, 7772-3, 7960, 8805-6, 9527-9.

Q. 7752-5, 8029-34.

Q. 9248-53.

Q. 7755-63, 7961-4.

Q. 7793-7, 7952-6, 7965, 8232, 8631-2, 9529-31, 9559-61.

Q. 9561-2.

Q. 9321.

Q. 9968.

Q. 9281, 9289-91, 9367, 9968.

Q. 9281-3, 9288.

Q. 9283-7.

Q. 8231.

Q. 7777-84, 8019, 8180-1, 8233-4, 8241, 8396, 8656, 9968.

in several instances, the mortality in various localities may be regarded as having been pretty fairly apportioned to the sanitary defects of each. Q. 8107-9, 8123, 8216-7, 8229, 8331, 8344.

108. That many of the causes which, beyond all doubt, have aggravated the virulence of previous epidemics there generally, and of the late outbreak in particular, are as obvious upon inspection, and almost as notorious, in Gateshead as in Newcastle; that the statements previously cited from the annual reports of the Medical Charitable Institutions, &c., of Newcastle, as to the aggravative causes of the various epidemics there, are admitted to be equally true in respect of the aggravative causes of the corresponding epidemics in Gateshead, and are further borne out by similar statements in the annual reports of the Gateshead Dispensary; and that, in spite of the improvements recently made in Gateshead, but chiefly affecting the better and less unwholesome districts, the same causes, which at those previous periods were reported as exercising unfavourable influences in respect of the then prevalent epidemics, were also, to a very great extent, in operation there last autumn, and exercised similar unfavourable influences in respect of the late outbreak. Ante, § 12, 13. Ante, § 14, 15. Q. 7735-40, 7774-6. Q. 9492-502, 7737-8. Q. 7868, 7907-10, 8006-10, 8499-500, 8658, 9036, 9201-3, 9218, 9361-7, 9582-7, 9848-57, 9864-70.

109. That the same radically bad system of house-construction which we have already described as prevailing in considerable districts of Newcastle prevails also, and probably to a larger extent comparatively, in Gateshead; that a large proportion of the houses occupied by the poorer classes in Gateshead (who there apparently constitute four-fifths of the entire population) are built back to back with one another, or, where not actually back to back, with back yards between them so small as to serve only to receive accumulations of filth, and to be quite inadequate for wholesome ventilation; that the courts and entries, or spaces between the fronts of these back-to-back rows of houses, are habitually so narrow as to render it almost impossible for either sun or wind to get at them, and to render them habitually dark, as well as damp and unwholesome; that one or other end of these narrow alleys is not unfrequently closed or built up, so as to constitute it a complete *cul-de-sac;* whilst, in one or more cases, smaller lateral *cul-de-sacs* are found leading out of a larger one; the other ends of these miserable places being also sometimes built over, so as to leave nothing but a single covered way for ingress or egress; that in other cases the houses are built into the abrupt riverward slope or bank, on which the lower part of the town is situated, so as to have one or more of the walls, for one or more stories in height, in close proximity with the earth of the acclivity above—a circumstance which, owing to the clayey nature of the surface soil, and to the very great deficiency of drainage throughout the borough, inevitably leads to a dampness in the walls of such dwellings, not unfrequently palpable to the eye—while in some instances both these classes of evils are combined, the ends of back-to-back rows of houses being built into, and the ends of the narrow courts and entries between them being made to abut upon, these undrained banks; and that in this way, throughout considerable districts chiefly occupied by the poorer classes, ventilation is rendered almost impossible; that in addition to all this, some of the houses are old and dilapidated, even as to the substance of their walls; that the habitual deficiency of paving and scavenging in the vicinity of such places tends greatly to increase the evils of such a state of things; while the vicious practices previously alluded to of misplacing privies and ashpits, and of allowing accumulations of dirt to collect in corners, &c., still further aggravate them, by saturating the walls of some of the houses with very impure water, or even with liquid filth; the interiors of such houses habitually corresponding to the exteriors, and being dark, unventilated and unwholesome—even in points beyond the control of the individual tenants—besides being in very many cases further prejudiced by the want of proper domestic conveniences, by overcrowding, filthy habits on the part of the tenants, and other matters herein-after adverted to. Ante, § 26-34. Q. 7800-1, 7967, 8037, 8206-11, 8368-70, 8385, 9532, 9594-5. Q. 9608. Q. 7819-20, 8159-60, 8893. Q. 7924-5, 8187-8, 8212, 8892-6, 9546. Q. 8205-8223. Q. 8142-7. Q. 7802-4, 8245, 8257-60, 8280-5, 8335-6, 8877, 9632-5. Q. 7811-2, 7968-9. Q. 7816-7, 8285, 8329, 8481, 8958, 9548, 9617. Q. 8352, 8399, 9545. Q. 7818-20, 8166-7, 8191, 8213, 8353-4, 8883, 8888-91, 9156-7, 9547. Q. 7859-60, 7975, 8690, 9177, 9615-6. Ante, § 34. Q. 7928-9, 8133-7. Q. 7855, 7930, 7973-4, 8877-82, 8959, 9549. Q. 7861-2, 8299-300, 8405, 9179.

110. That, by general consent of the witnesses before us, a large part of the dwellings of the poorer classes in Gateshead are not fit for human habitation; the Town Clerk there computing that at least one-half of the population is thus dangerously mis-lodged; that a considerable part of those dwellings are not only not fit, but incapable of being rendered fit for such a purpose; and that the impossibility of so rendering them fit for habitation is assigned as the reason why no attempts have been made even to improve them. Q. 7844-5, 7980, 8482-5, 8962, 9179-81, 9533-5, 9539-43. Q. 9562-3. Q. 7854-63, 7911, 7981, 8480, 8490-4, 8962-4, 9219, 9364-7, 9536-8, 9616, 9628-30. Q. 8745-52, 9036, 9658-9.

111. That the seriously, if not irremediably, bad condition of the dwellings

Q. 7925, 7941, 8405-22, 8936, 9181.

of the poorer classes is by no means exclusively confined to the oldest and lowest parts of Gateshead; and that while in those parts it may have arisen, to some extent at least, from gradual and therefore scarcely perceptible changes, in other and more modern parts it has resulted from less excusable causes; that, in particular, the introduction of cellar dwellings into Gateshead is a matter of comparatively recent date; that they are now found there in considerable numbers; and that, during the late outbreak, in those streets, &c., in which cellar dwellings did exist, a serious proportion of the whole mortality appears to have occurred in them.

Q. 7807-8, 7935, 8885-6, 9550.
Q. 8043, 8105, 8128, 8133, 8327, 8400.
Q. 8088-91, 8105-6, 8422, 9123, 9263 9293-7, 9305, 9307-9.

111. That another striking instance of the recklessness recently exhibited in respect of house-building in Gateshead may be found in the following facts, viz., that in some cases where the sandstone (which here comes very near the surface) had been worked out of a quarry, or the quarry had for any reason fallen into disuse, the open excavation had been used as a receptacle for street sweepings, town refuse and all the rubbish and filth that any one might please to shoot into it, until filled up to or above the level of the surrounding soil; and that thereupon houses and streets have been built on the top of the noisome mass thus accumulated, without any adequate drainage having been provided to prevent the perpetual soakage of rain and refuse water into it and the perpetual re-exhalation of noxious vapours from it; and that, during the late outbreak, the first death by cholera and a mortality of 15 out of 488 occurred in one of these streets, ten out of those fifteen deaths having taken place in the cellars, which had literally been re-excavated out of this accumulation of refuse.

Q. 7813-4, 8863.

Vide Ante, § 76.

Q. 7804-5, 8064-70, 9219-23.

Q 9262.
Q. 9263.

11 & 12 Vict. c. 63, § 49, 51, 53, 72.

113. That, since the year 1851, the Local Board of Health, under the authority of the Public Health Act, have been invested with a certain amount of control over the formation of new streets and over the construction of houses newly built or re-erected within the borough; that this control appears to have been diligently exercised, and that the results of it are stated to have been visible in the improved structural arrangements of the houses and streets built since that time; that, under the same Act, they have also been invested with considerable control over the occupation not only of cellar dwellings built or re-built after the passing of that Act, but of all cellar dwellings whatsoever; that this control has to some extent been exercised, but not, we fear, to the extent to which it might and ought to have been:—a circumstance the more to be regretted, owing to the very considerable amount of mortality which appears to have taken place in such dwellings during the recent outbreak.

Q. 7925-7, 8668, 9139, 9588, 9716-22, 9871-3, 9907, 9909-12, 9947.

11 & 12 Vict. c. 63, § 67.

Q. 8728-34, 9121-4, 9807-8, 9940-2.

Q. 7852-3, 8224, 8243, 9340-9.

114. That the poorer classes of Gateshead are not only exceedingly ill lodged, but also much overcrowded in their lodgings; that it is an habitual thing for an entire family to live, sleep, cook, eat and wash, &c., in a single room; the corners of single rooms thus occupied being occasionally further sub-let to other families or lodgers; that this overcrowding among them appears to be generally greatest about harvest time, in September and October, which was the period when the late outbreak chiefly prevailed; and that confident opinions have been expressed as to overcrowding and the want of proper ventilation having been a very powerful cause predisposing to cholera.

Q. 7848, 7977, 8045-7, 8295-8.
Q. 7849-50, 7978, 8175, 8225, 9301, 9322.
Q. 7851-2, 8358-62, 9343-6.
Q. 7950-1, 8608-12, 5338-9, 9383.

115. That there are stated to be about 3,423 houses in the whole borough (3,380 in the year 1851), and probably are some 5,500 families or thereabouts (5,263 in the year 1851); that of these 3,423 houses 1,838 appear to be occupied as self-contained houses by as many families, leaving the remaining 1,585 houses to be occupied in tenements by the remaining 3,662 families, which, on the average, would give considerably more than two families to each tenemented house,—the houses in Gateshead being considerably smaller on the average and containing fewer rooms than those in Newcastle;—that we have not been able to obtain the materials for computing, as in respect of Newcastle, what percentage of the population of Gateshead occupies each different class of tenements, or for framing, relative to Gateshead, such a table as has already been exhibited in respect of Newcastle; but that facts, nevertheless, are not altogether wanting to illustrate the significance of overcrowding already adverted to; that in one district, in which ninety-nine families each occupied a house to themselves, the mortality was 6 out of 501, or 1 in 83·5; that in another district, in which fifty-nine families occupied thirty houses (or nearly two

Q. 9372-83.

Q. 9374.

Ante, § 45, 46.

Ante, § 56, 57.

Q. 9324-8.

families to a house), the mortality was 5 out of 282, or 1 in 56·4; that in a third district, in which 185 families occupied 84 houses (or more than two families to a house), the mortality was 21 out of 907, or 1 in 43·1; that in the northern block of New Gateshead, in which ninety-one families occupied twenty-six houses (or 3·5 families to a house), there was a mortality of 13 out of 417, or 1 in 32; while, in the immediately adjoining southern block, in which twenty families occupied nineteen houses (seventy-six rooms), there was no death at all among 130 persons; to which may be added that in Leonard's Court, in which the crowding appears to have been as great, if not greater than anywhere else, viz., seventy-eight families to fourteen houses (or 5·6 families to a house), the mortality appears also to have been about the greatest, viz., 15 out of 293, or 1 in 19·5; and although, in certain of these instances, the term "house" may correspond to very different capacities for habitation, in most instances the succession of figures above given will represent the relative degrees of overcrowding.

Q. 9329-32. Q. 9333-9. Q. 9268-71, 8544-8605. Q. 9272-7, P. 522. P. 522.

116. That in consequence of the above circumstances, and of others more particularly adverted to in respect of Newcastle, but also prevailing more or less in Gateshead, the condition of many of the dwellings of the poorer classes there appears to have been habitually filthy and unwholesome; that since the year 1851 the Local Board of Health, under the authority of the Public Health Act, have been empowered to compel the owner or occupier of any such dwelling to whitewash, cleanse or purify the same; that in March 1852 the Local Board issued and got approved a byelaw relative to this matter, but that no medical officer has ever been appointed whose special duty it should be to see to the enforcement of this and of divers other powers and byelaws, or to issue the requisite certificates; and that the exercise of the power in question, eminently beneficial as it would have been, has been almost entirely neglected.

Ante, § 48. Q. 9618-9. 11 & 12 Vict. c. 63, § 60. Q. 8995, 9116-7. Q. 9041-3, 9891-5. Q. 7845, 7976, 8996, 9110-2, 9932-4.

117. That, on the other hand, from the same year 1851, both under the powers of the Public Health Act and also of the Common Lodging Houses Act, the Local Board have been invested with large control over all such places; that in March 1852 the Local Board issued and got approved various byelaws relative thereto; that these byelaws appear to have been regularly and stringently enforced; and that the beneficial results of this surveillance by the Local Board is stated to have been visible, not only in general, but also in the sensibly less mortality, which occurred during the late outbreak in the registered lodging-houses, as compared with other houses of similar situation and calibre.

11 & 12 Vict. c. 63, § 66. Q. 8664, 9643-4. Q. 8726-7, 9002, 9119, 9645, 9862, 9939. Q. 8011, 8354-8, 8363, 8495-6, 8725, 9118-20, 9429-30, 9587, 9646-52.

118. That, with reference to the sewerage of Gateshead, it appears that at the time of the constitution of the Local Board in 1851, there was one main sewer of about sixty chains or three quarters of a mile in length, and in good condition, and about thirty-two chains or three-eighths of a mile in length of drains or sewers so imperfect as, in the opinion of the Town Surveyor, hardly to deserve the name, besides a certain amount of partially covered surface gutters, which merely took the water, &c., away from one point of the surface to re-deliver it to the surface a little lower down, and not unfrequently into the open street and into the immediate vicinity of other houses; and that the extent of house-drainage, or the number of houses drained into those sewers, was still less than might have been expected, even with this limited extent of sewerage.

Q. 8903-7, 8920-3, 9851-4, 9962. Q. 8915, 8919, 8925, 9055-8, 9510-2, 9964. Q. 8907-9. Q. 8192, 8910, 8916.

119. That at the time of our inquiry, and although a good many water-closets have recently been introduced owing to the exertions of Mr. Surveyor Hall, there were still but 64 out of the 3,423 houses in the borough, which had watercloscts supplied by the water company; and taking into consideration the few supplied by rain or spring water cisterns, there were not probably above 80 houses out of that whole number, or less than one fortieth part, having fæcal drainage.

That of the 235 houses, which might have been drained into the one good main sewer, only 86 actually were so; and that, taking into consideration those drained into the disused coal workings beneath them and otherwise, there were not probably, even at the time of our inquiry, so many as 150 out of the 3,423, or less than one twentieth part of the houses in the borough, which had even proper surface drainage.

Q. 9806. Q. 8826-7, 8929, 9379-80. Q. 8434, 8931. Q. 8932-3. Q. 8916-9, 8924, 8927-8. Q. 8149, 8434, 9224-33, 9723-4. Q. 8934-5.

120. That under these circumstances, of course, the great bulk of the town, not only in the poorer, but also in the wealthier districts, was extremely, if not entirely destitute, not only of fæcal drainage, but of drainage of any kind

Q. 8150-1, 8218-21, 8239-40, 8250-1, 8286-7, 8374-5, 8393, 8402, 9167, 9551.

Q. 8061-3, 8068-9, 8082, 8189, 8265 9, 8343, 8386-8, 8394, 8403, 8416.
Q. 9850, 9855-6.

or sort; that a certain proportion of the drainage which did exist, was, as above mentioned, exceedingly imperfect and inefficient, and often (as were also many of the surface gutters above alluded to) filthy and offensive in the highest degree; that none of the gully grates in the town appear to have been trapped, except in one street recently drained by the Local Board; and that the results of such a state of things are too obvious to require comment.

11 & 12 Vict. c. 63, § 41-48, and 68.
Q. 8911-4, 9966, 7868-70, 7936-40.
Q. 9125-8.
Q. 8966-77, 9044-8, 9583, 9708-13, 9767-8, 9896.
Q. 8978-90, 9819-23.

121. That, under the authority of the Public Health Act, the Local Board have had ample powers in respect of sewering the public streets and highways of the borough; and that, in respect of these, some small additions and improvements had been made previously to the late outbreak; but that generally the powers had not been exercised with any energy, nor even to the extent which might reasonably have been expected; that proposals for the preparation of a proper map of the borough, with a view to a comprehensive system of sewerage, had several times been urged upon the Local Board by the Surveyor and by individual members of it; but had invariably been rejected, apparently on the score of expense; that the survey of a portion of the borough had, however, been authorized with a view to the sewering of one natural drainage area in the eastern part of the borough; but that, even since the epidemic and at the very time of our inquiry, the same injudicious (and in its results extravagant and wasteful) parsimony appears to have interfered to obstruct or prevent the execution of a proper and efficient sewerage system there, and to endeavour to substitute one to all appearances much less desirable.

11 & 12 Vict. c. 63, § 49, 53.
Q. 8678-80, 8700-2, 9060, 9067-8, 9723-4, 9800-2, 9858, 9900.
Q. 9060-3.
Ib. § 49.
Q. 8681-8, 8916 8, 9757-60.

122. That the enactments of the Public Health Act, providing that it should not be lawful to erect or re erect any house without drains, &c., appear to have been well and vigilantly enforced; but that, owing to the great deficiency of public sewers, this enforcement has not been attended with all the benefit thereby contemplated; so few of the houses recently erected or re-erected in the borough having been within the prescribed 100 feet of the sea or of any public sewer, that it has been necessary for the Local Board to sanction their being drained into cesspools, disused coal workings, and in other more or less undesirable ways: and that the further powers of that Act, enabling the Local Board to cause any and every house to be drained which is within 100 feet of the sea or of a public sewer, whether built before or after the application of that Act to the district in which it is situated, have been greatly neglected, and indeed have been exercised in but very few instances.

Ib. § 69.
Q. 8735, 9745-9, 9763-6, 9815-9.
Q. 8737, 9750-6.
Q. 9129-38, 9764-5.

123. That, by the same authority of the Public Health Act, the Local Board have been empowered to compel the sewering of private streets, &c.; that in three or four instances this power has been put in force, and in one at least with great apparent benefit to the locality, and at an expense so moderate as to cause not quite three farthings addition to the weekly rent of the house; but that on the whole it has not been exercised with the energy demanded by the circumstances, nor probably in half the cases in which its exercise has been urged upon the Local Board by their excellent officer and surveyor, Mr. Hall.

Q. 8433.
Q. 8434, 8940-1, 9564-5.

124. That, as will be obvious from the above, the almost universal arrangement in Gateshead (where any such arrangement exists at all) is that of open privies in immediate proximity to the houses; the deficiency of sewerage being such that even the wealthier inhabitants are often unable to provide their houses with better accommodation.

Q. 7822, 8196, 8423-4, 8937-8, 9158, 9552.
Q. 7823, 7945, 8273-5, 8307, 9443-52, 9489-1, 9597.
Q. 9608.
Q. 7827-8, 8438-41.
Q. 8449-64, 9169.
Ante, § 66.
Q. 9161, 7837.
Q. 7837-8, 7970, 8173 4, 8274, 8308, 9162-5.
Q. 8154-8, 8249, 8370 3, 8376, 8944-5.
Q. 7829-36.
Q. 7841-3.

125. That the extent of the privy and ashpit accommodation for the poorer classes and in the tenemented houses of Gateshead is nearly, if not altogether, as deficient as in Newcastle; not more than one such convenience existing frequently for every twenty, thirty, or even forty families, and occasionally none at all; perhaps one half of the poorer inhabitants (or nearly two-fifths of the entire population) being thus miserably destitute; whilst in Pipewellgate, a district containing not much less than 2000 people, probably nine tenths of them are thus situated; that this shocking deficiency of proper conveniences is attended with the same results in Gateshead, as heretofore described in respect of Newcastle; the same disgusting use of "kits," the same retention of them more or less full of all kinds of filth in the single-room tenements or at the stairheads and corners, the same strewing of the gully-grates and of the surfaces of the courts and entries with excrement and garbage, the same occasional conversion of unoccupied rooms, cellars or closets into privies and ashpits, the same use of waste and vacant pieces of ground for similar purposes, and the same

inevitable and intense pollution of the air both within and without the rooms and houses; to which must be added that, in one point, Gateshead is even more deficient than Newcastle, viz., in not having a single public privy. Q. 7929, 8442-8, 9618 Q. 8428 9, 9479, 9596

126. That, under the authority of the Public Health Act, the Local Board have been empowered to compel the owner or occupier of any house in the borough, whether built before or after the time of the application of that Act, to provide the same with a proper water-closet or privy and ashpit; and that water-closets have accordingly been introduced in a good many of the instances in which the exercise of this power has been recommended by Mr. Surveyor Hall; but that, generally speaking, the power has been greatly neglected; that little or no visible improvement in this respect has taken place since the constitution of the Local Board; and that even some of the registered lodging-houses have been allowed to remain destitute of such accommodation; to which should be added, that the further powers of the Act, enabling the Local Board to provide public middens and necessaries, and thereby to mitigate the evils arising from this deficiency of private ones, had, almost up to the time of our inquiry, been equally and entirely neglected. Ib. § 51. Q. 9806. Q. 9070-4, 9931-3. Q. 7824, 7947-8, 8425-7. Q. 8443-4. Ib. § 56, 57. Q. 9804-8, 9915-6.

127. That the privies and ashpits which did exist in Gateshead appear to have been habitually in a foul and most objectionable condition; that the same indifference to filth, and negligence in respect of having such places properly emptied and cleansed, appears to have prevailed in Gateshead, as in Newcastle; and that, where this indifference and negligence did not exist, considerable and increasing difficulties appear to have been experienced in getting such operations performed; that it was enacted by the Public Health Act, that the Local Board should see and provide that all drains, water-closets, privies, cesspools and ashpits should be constructed and kept so as not to be a nuisance or injurious to health; that this enactment has, in a few instances, been complied with, but in so few out of the many calling for such compliance therewith as to have produced no sensible improvement and no appreciable diminution of the sanitary evils thence arising; and that the chief reason assigned by the Local Board for its not having been more frequently complied with is, that the multitude of such ill-kept places has been so great, as to render it hopeless to attempt the remedying thereof, until some comprehensive schemes of sewerage, scavenage, &c., shall have been devised to prevent the hitherto inevitable recurrence of such nuisances. Q. 7825-6, 7840, 7855, 7945, 7971-2, 8072, 8161-2, 8430-1, 8939, 9159, 9310, 9553, 9598. Q. 8435. Q. 8435-7, 9078-9. Ib. § 54. Q. 8703-7, 9757-60, 9796-9, 9803, 9867. Q. 7946, 8753-5, 9009, 9077. Q. 8747-8, 9009-10, 9069-78, 9908.

128. That the flagging, paving, &c., of two or three of the chief thoroughfares of Gateshead appears to be pretty good, but in other public streets and thoroughfares to be but indifferent, while in some few public ones, and in the majority of private courts and entries, it is either entirely deficient or else exceedingly imperfect, and sometimes so bad as to be practically almost uncleansable; that, under the authority of the Public Health Act, the Local Board have had full power to level, pave, flag, channel, alter and repair all public streets; and that this power has been exercised to a certain, although but an inadequate extent, so as to lead to an appreciable improvement in the main thoroughfares, but not to any improvement at all in the miserable courts and entries, the condition of which most urgently calls for the exercise thereof; and that the similar powers of the same Act, enabling the Local Board to compel the levelling, paving, &c., of private streets, has similarly been exercised only to the same inadequate extent, although, in one instance at least, as before mentioned, with great benefit to the locality and at a very moderate expense. Q. 8465. Q. 8466. Q. 8152, 8377, 8416, 8467-8, 8942, 9166, 9198-200, 9566-7, 9824-6. Q. 8342, 8463, 8948-9. Ib. § 68. Q. 9125-8, 9714-5, 9725. Q. 7868-70, 7937-40, 8005-7. Ib. § 69. Q. 8735-8, 9129-38, 9736-44, 9763-6, 9943-6. Q. 8737, 9750-6.

129. That the scavenage in Gateshead, which, up to about the time of our inquiry, seems to have been conducted on the same faulty system as has already been explained with reference to Newcastle, appears, up to the time of the late outbreak, to have been much neglected in many places, and in the miserable courts and entries to have been neglected altogether; that, at the time of that outbreak, large accumulations of offensive matter were collected in various parts of the town, and that probably 600 or 700 loads were removed during the epidemic, without exhausting them, several such still remaining unremoved up to and at the time of our visit there; and that, except in a few cases, the surface cleansing powers conferred upon them by the Public Health Act appear, especially up to the time of the late outbreak, to have been very inadequately enforced and exercised by the Local Board, though chiefly, no doubt, in respect of the faulty system of scavenage adopted or acquiesced in by them; Q. 9091-2, 9925-6, 8951-2, 8198-9, 8473. Ante, § 74. Q. 9568-71. Q. 8153, 8292-3, 8309, 8378, 8472, 9168-9. Q. 9572-6, 9613, 8950. Q. 9927-31. Q. 7872-4, 8474-9. Ib. § 55, 58, 59. Q. 9081-3, 9089-95, 9105-9, 9726-32, 9769-71, 9861, 9886, 9912a-14, 9918-25.

Q. 8768-70, 7942-3, 8471, 8708-14, 8947, 9003-8, 9968.

considerable improvement having recently been visible in the scavenage of a few main thoroughfares.

Ante § 77.

130. That the observations previously made as to the results of the deficiency of sewers, drains, paving, scavenging and domestic accommodation, &c., upon the health of the inhabitants of Newcastle, are equally applicable, *mutatis mutandis*, to the case of Gateshead; and that the same holds with reference to

Q. 9181-7.

Ante § 67.

the observations upon the habits of the poorer classes also;—the proportion of

Q. 7903, 9607-12.

the poorer classes to the entire population being probably somewhat greater in Gateshead than in Newcastle;—it being incontestible that those habits are in a

Q. 7903-6, 8001-4, 8177-8, 8200-1, 8227, 8262-4, 8396-7, 9172-5, 9577-8.
Q. 7845-7.
Q. 9170-6, 9578, 9598-605.

large proportion of cases more or less, and sometimes exceedingly, reckless and filthy; whilst on the other hand it is equally certain that the circumstances to which they are subjected are in the highest degree calculated to give origin to such habits even in persons not previously given thereto: that some, at least, among these people appear to be decidedly cleanly in matters properly within their own control; and that it can hardly be affirmed even of the dirtiest among

Q. 9579-80.

them, that they have ever had adequate means or opportunities of keeping themselves clean.

Ib. § 61, 62.

131. That, under the authority of the Public Health Act, the Local Board have had power to provide for the keeping all slaughter-houses in a cleanly and

Q. 8723-4, 8995, 9011-2, 9113-5, 9655-6, 9809-14, 9862, 9874-85, 9935.
Q. 7983-4, 8011, 9657, 9936.

proper state; that byelaws relative thereto were early issued by them, and have since been stringently and vigilantly enforced as far as possible; that the beneficial effects of that supervision is stated to have been visible, at all events in several cases; but that, owing to the impossibility of effectually enforcing proper regulations in such establishments in the absence of adequate sewerage, many

Q. 8121-5, 8139, 8497, 8994.

of them have continued to be more or less nuisances, and even appear to have led to an increase of mortality during the late outbreak; that other offensive

Q. 7866-7, 8339-40, 8370-3, 9624-7, 9641, 9833-44, 9887-9.
Q. 9937.
Ib. § 64.

trades, especially triperies, fellmongeries, bone and guano dealeries, &c., have also prevailed to a considerable extent; that the Local Board have enforced the enactment of the Public Health Act, which provides that none such shall be newly established without the consent of the Local Board; but that, in one

Q. 9772-95, 9189-92.

instance at least, they appear to have given consent to the new establishment of one such, to the obvious detriment of the health of the vicinity, and in opposition to the advice of their Surveyor; that the Local Board in Gateshead has

Q. 9188, 9238.
Q. 7922-3, 7985, 9239-42.

had no specific power to abate the smoke nuisance, and that the same has accordingly increased; and that, what with coal smoke and the fumes evolved from chemical works, &c., the atmosphere of Newcastle and Gateshead is

Q. 9243-6.

stated to be so acrid and to lead to so rapid a corrosion of the telegraph wires, that the latter were, at the time of our inquiry, in process of being taken down from their exposed position along the elevated lines of railway, and being inclosed in metal pipes as a protection against it; that the nuisance arising

Q. 9761-2, 9860, 9919.

from swineries has been greatly abated by the Local Board, under the powers of the Public Health Act; but that a gigantic nuisance in the shape of a

Q. 8052-4, 9096-104, 9827-32.

cowbyre has, in spite of the representations of the Surveyor, been suffered to continue in a densely populated neighbourhood, to the apparent aggravation of

Q. 8070.

the mortality during the late outbreak; that the chief burial ground, in the

Q. 7875-7, 7986-90, 9514-9, 8740-1.

centre of the town, appears up to and at the time of the late outbreak to have been in a very overfull and unwholesome condition, and to have been shut up accordingly as such; and that other general causes, original or aggravative, of the late outbreak, such as unwholesome food, bad fruit, excess in drink, &c.,

Ante, § 92.

will also have been in operation in Gateshead, as well as in Newcastle, but that, in the presence of so much more important and more easily removable causes, we do not think it necessary to dwell at any length thereon.

132. That whilst reporting, as we do without any hesitation, that the sanitary powers of the Local Board in Gateshead had, up to and until the time

Q. 8995-9001, 9013, 9143-4, 9207-21.

of the late outbreak, been in many respects but inadequately and unsatisfactorily exercised; that the due exercise of those powers could not have failed decidedly to mitigate the virulence of that outbreak, and consequently that the inadequate exercise of them cannot but be regarded as having tended seriously to aggravate it; we, nevertheless, have considerable hesitation in expressing an opinion as to the degree of blame attaching to the Local Board in respect thereof:—that the Local Board had been constituted but very little more than two years, when

Q. 8860-1.

the late epidemic burst upon them; that the operations of all newly constituted representative bodies, having no means of action except by additional and

unpopular rates specially leviable for the purpose, are liable to be somewhat slow at first; that the Local Board of Gateshead not only commenced its preliminary operations briskly in respect of the appointment of some of its officers, but also within six or seven months after its final constitution had issued and got approved several very useful byelaws, on a variety of subjects, and again, upon the outbreak of the late epidemic, exhibited considerable energy in their endeavours to repress it, although, of course, to comparatively little purpose; that some of its officers, especially its Clerk (or rather, as we fear we ought now to say, its late Clerk) and its Surveyor, and some few of its members, have always been eager and earnest advocates of the full exercise of its sanitary powers, and have zealously afforded us, as to Mr. Superintending Inspector Rawlinson before us, all the information and assistance in their power; and that, in the actual exercise of those powers, the Local Board does not appear ever to have lagged behind, but on the contrary to have been generally in advance of public opinion in the borough, and of the views and wishes of the ratepayers at large; that, although some few of the more active members of the Local Board appear themselves to have been owners of some of the very ill-conditioned house property in the borough, and in so far to have been personally and pecuniarily interested in obstructing the exercise of the salutary powers in question, still the main obstruction thereto appears to have consisted in the impatience of sanitary rates on the part of the ratepayers at large, who have hitherto been more alive to the direct pressure of those rates than to the indirect effects of unremedied sanitary evils upon life and health, and ultimately upon the poor rates; that other and for the time, no doubt, considerable difficulties appear also to have been experienced in borrowing monies to defray the first expense of compulsory improvements on private properties, as also in recovering the monies thus expended in advance, and generally in having frequently to threaten or resort to expensive legal proceedings in order to insure a compliance with the law; to which should be added that, although nothing has been done in respect of model lodging-houses for the accommodation of the poorer classes, baths and washhouses have from their first constitution been in contemplation and in course of preparation and erection, and will probably be open to the public before the expiration of the third year from the time of that constitution.

Q. 8862-7, 9643-4.
Q. 8642-3.
Q. 8644-5.
Q. 8690-6, 8755-6, 9353-6.
Q. 9145-53.
Q. 9581 8714-22, 8738, 8743-4, 8757, 8795-6, 9051-3.
Q. 8689.
Q. 9134-8.
Q. 7864-5, 7982, 9500, 9653-4.
Q. 9733-5, 9863.

133. That the observations already made in respect of the water supplied to Newcastle before and during the late outbreak, are also in the main applicable in respect of that supplied to Gateshead, both towns being supplied by the same Water Company and from the same original sources; that the possibility of local differences in the quality of the water, owing to local circumstances, was more strongly suggested by the evidence given in Gateshead, but that in other respects this was nearly identical with that given in Newcastle; that there was the same general consent as to the water having been bad, muddy, and very undesirable for drinking purposes; that the same distinct declarations were made by some witnesses as to its having had a disagreeable taste and offensive smell (although in Gateshead this was stated to have happened in other years besides 1853), whilst, on the other hand, similar statements were made by others as to their never having noticed anything of the kind; but that no one in Gateshead appeared to have heard of any such offensive changes in the water of ordinarily good wells and springs, as were alleged to have occurred in some cases in Newcastle; that while one witness was of opinion that the water was such as would predispose the public generally to diarrhœa, and so render them more susceptible of cholera, others expressed themselves to the effect that the use of it had not had any material, or at all events directly traceable, effect on the virulence of the epidemic; that the nature of the water supply in Gateshead, viz., in respect of its being but very rarely introduced into the interior of the houses, is defective, as in Newcastle, and in respect of its being less often introduced into any part of the premises, appears to be still more so; and that the extent of it, although greatly increased under the auspices of the existing Company, is still inadequate to the wants or necessities, especially of the poorer classes; that in a few instances the Local Board have exercised their powers under the Public Health Act of compelling housowners or occupiers, under certain circumstances, to provide their houses with water; but that the powers in question have not been fully adequate to the purpose in view, owing to the doubt whether the word "house" there can be construed

Ante, § 84-90.
Q. 8828.
Q. 8779-81, 8807 9669-77.
Q. 7878-9, 7995-6, 8501-5, 8761, 9014 9194-5.
Q. 8761-74, 9015-9.
Q. 8776-87, 8807-8, 9661-8, 9689-702.
Q. 7880-5, 7997-9, 8506-9.
Q. 7892-3, 7993, 8533-6, 8775.
Q. 8540.
Q. 7889-91, 8541-53, 9357-60.
Q. 8524.
Q. 8830-2
Q. 7894-7, 8511-32, 8813-25, 9678-88.
Q. 9804-5. Ib. § 76.

Q. 8833-6, 9948-50. to apply to a tenement or part of a house, such tenements being the only dwellings in Gateshead now destitute of water supply.

134. That, with reference to the cost of the late epidemic in Gateshead, it Q. 9384-93. appears that an expense of about 1,278*l.* was incurred by the Board of Guar- Q. 9409. dians for immediate services; that a public subscription of about 600*l.* was Q. 9394-9. similarly expended; that an annual expense of about 450*l.* was incurred for the maintenance of persons thereby rendered chargeable to the poor rates, which, at only six years' purchase would amount to 2,700*l.*; so that, without considering Q. 9409. the loss arising from stoppage of trade, &c., and which must have been very considerable, the cost of the recent outbreak will have amounted to some 4,600*l.*, P. 574. or more than the whole public expenditure of the Local Board during the two years of its existence: and all, as before observed, in respect of Newcastle, Ante, § 99. without the slightest benefit to the town, and without the slightest defence or guarantee having been thereby obtained against the recurrence of a similar calamity and expense.

THIRDLY, AS REGARDS TYNEMOUTH:

135. That the borough of Tynemouth, as its name imports, is situated at the mouth of the river Tyne, on the north bank, some eight or nine miles below Newcastle, and in a physical and sanitary view presents many points of resemblance both to Newcastle and to Gateshead; that the same radically bad forms of Ante, § 27-34. house construction, back to back or into "banks," and the same dangerous, if not irremediable, unwholesomeness of habitations prevails there also to a consi- Q. 9974-7. derable extent; the sewerage, drainage, paving, and privy and ashpit accom- Q. 10017, 410-2. modation being probably as deficient there, and the water supply being worse, than in either of those other places: and the whole sanitary condition of the Q. 9977, 10023. borough, as regards permanent works, being admitted to be but little better Q. 9972-3. than in 1849, when it was very bad, and when the place was most severely visited by cholera.

Q. 9971. 136. That the borough of Tynemouth appears not to have been incorporated till November 1849; that the Public Health Act was applied to it, and the Q. 9978. Town Council constituted the Local Board of Health there in 1851; that since then a complete survey of the borough has been made with a view to comprehensive sanitary works; that in September 1852, when the cholera was supposed Q. 9979-99, 10018-23. to be approaching our eastern coast, and again in September 1853, after it had broken out in Newcastle and in Gateshead, a thorough cleansing of the borough was instituted, and other temporary measures adopted and carried out with Q. 9999, 10001-16, great energy and effect; that in point of fact, the borough suffered a loss P. 580. of but 12 lives out of 30,000 or upwards (29,170 at the census of 1851); and that under these circumstances we have not thought it requisite to go into any more lengthy inquiry or report with reference to this borough.

All which is humbly submitted for Your Majesty's gracious consideration.

JOSEPH BURNLEY HUME.
JOHN SIMON.
JOHN FREDERIC BATEMAN.

15th July 1854.

MINUTES OF EVIDENCE.

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An Analysis of the Evidence is, virtually, given in the marginal notes to the Report.

MINUTES OF EVIDENCE

TAKEN BEFORE

THE CHOLERA INQUIRY COMMISSIONERS,

NEWCASTLE-ON-TYNE.

Commissioners.

JOSEPH BURNLEY HUME, Esq. IN THE CHAIR.

JOHN SIMON, Esq.

JOHN FREDERICK BATEMAN, Esq.

THOMAS EMERSON HEADLAM, Esq., M.D., and Alderman of the Borough of Newcastle-upon-Tyne, (sworn):

T. E. Headlam, Esq., M.D.

19th Jan. 1854.

1. (*Chairman.*)—You are consulting physician, I believe, to the infirmary of this town?—I am.

2. And you are physician to the Newcastle dispensary, and also to the fever hospital here?—Yes.

3. You have practised in this town for a great many years, I believe?—I have; since the year 1805.

4. You remember the outbreak of cholera in 1831 and 1832?—Perfectly.

5. Was its spread universal in respect of all ranks and classes in life?—Not in the first instance.

6. Was it confined chiefly to the lower classes?—Chiefly to the lower classes.

7. Did it spread equally through all parts and districts of the town?—It was confined very much to the lower parts of the town.

8. Do you mean lower in respect of level?—I mean lower in respect of level.

9. I notice from the reports of the fever hospital that, whereas in the five years 1833—1837 the cases admitted into the fever hospital ranged from fifty-one downwards, and averaged about thirty-five per annum, in the years 1838, 1839, 1840, and 1841 they amounted to 162, 120, 128, and 115 respectively. Do you find that so stated there?—Yes.

10. Can you remember what diseases or epidemics prevailed to swell the fever cases to that extent?—I do not recollect exactly those years; but the variety of epidemics was considerable in different years; and they prevailed particularly in connection with the insufficiency of food.

11. Do you remember that in the year 1843–44 there prevailed an epidemic of contagious fever?—I cannot be answerable for the epidemics in particular years. I know there was a great variety of them, and I can only remember them by referring to the statistical reports of the day.

12. Do you find it stated in the fever hospital report for the year 1844 that contagious fever had that year been prevalent in an increased degree, and that 124 cases had that year been admitted, being more than twice the number admitted during the preceding year?—I do; but I can state only generally that I believe in the correctness of those reports.

13. Do you in the report of the Newcastle dispensary for the year 1846 find it stated that measles, small pox, and scarlet fever had been prevalent in an epidemic form during a great part of the year ending Michaelmas, 1846?—I do.

14. You believe that statement to be correct?—Yes.

15. Is it there stated that scarlet fever had prevailed in one of its worst forms; and that cases of small pox had that year been more numerous and severe than for several years previously?—It is so stated, and I believe it to be correct.

16. Can you remember that that epidemic of scarlet fever prevailed till April, 1847?—I do not distinctly remember that.

17. Is it stated in the dispensary report for the year 1847 that in the eighteen months during which the epidemic of scarlet fever prevailed 467 cases had been admitted into the dispensary, of which sixty-one had died?—It is so stated in the report.

18. Do you in the same report find it stated that in the same year continued and typhus fever had been more than usually prevalent, and do you in the fever hospital report for the same year find it stated that, at the same time that scarlet fever in its most malignant form was ravaging the infant population, the Irish fever also was prevalent among the rest of the population?—I do.

T. E. Headlam, Esq., M.D.

19th Jan. 1854.

19. I see by this last report that the fever cases admitted in that year amounted to 137, as compared with fifty-five and fifty-three in the two previous years. Would that imply a considerable intensity of epidemic?—Certainly it would; and I can state from my own recollection at that time, that that epidemic prevailed chiefly from the immigration of Irish trampers who had been suffering from famine.

20. Can you remember that that Irish fever continued all through 1847 till the spring of 1848?—I believe it did.

21. But that it was peculiarly intense in the autumn of 1847?—I do not exactly know at what period it was peculiarly intense; but about that time it prevailed, and was attributed to that cause.

22. Do you find it stated in the dispensary report for the year 1848 that the epidemic of continued fever, which prevailed so extensively at the date of the previous year's report, continued with unmitigated severity during the autumn and winter months, notwithstanding all the exertions made to arrest its progress?—I find that stated in the report.

23. You have mentioned that the Irish fever was introduced chiefly by the immigration of Irish trampers—was it confined in its ravages to the Irish population only?—It was not confined to them only, but chiefly.

24. Did other classes of the population suffer from it?—There were other classes similarly circumstanced: other trampers and other inhabitants in crowded dwellings.

25. Is it stated in the report of the fever hospital for the year 1848 that the number of cases admitted in that year reached 710, as compared with 137 in the year before, and fifty-three in the year before that?—It is so stated.

26. And you believe it to be correct?—And I believe it to be correct.

27. Were you familiar with the arrangements that were then made to accommodate those patients?—I know there were increased arrangements made for their accommodation.

28. No such intensity of fever had ever been known before?—Never.

29. And there were no hospital arrangements in existence at all adequate to meet it?—There were not.

30. Would you say that the Irish fever prevailed in the same localities as the cholera of 1831 and the scarlet fever of 1846, or was its localization different?—Generally speaking, it was in the lower parts of the town. There are particular places where the Irish resort.

31. Could you specify any of the districts in which both epidemics raged alike?—I should say in the lower part of the parish of All Saints.

32. Can you give any name to its chief seats more distinct than that?—I should say Sandgate, and Pandon, and Stockbridge, and the New Road.

33. Is it stated in the dispensary report for 1848 that in the November of 1847, while the Irish fever was still raging, an epidemic of influenza of more than ordinary severity commenced and continued with more or less virulence during the whole of the winter?—It is so stated in the report.

34. Is it stated that typhoid symptoms supervened in many cases to such a degree as to change what is in general a very manageable disease into one of great difficulty and danger?—It is so.

35. Does that imply a considerable intensity of the complaint?—Considerable intensity of fever.

36. Is it stated in the dispensary report for 1851 that a smart epidemic of scarlet fever prevailed in the autumn and winter months of 1850, and continued until April, 1851?—It is so stated.

37. And you believe it to be correct?—And I believe it to be correct.

38. I find in the dispensary report for 1852 that scarlet fever, which had prevailed as a smart epidemic during the autumn and winter months of 1850, had persisted in its ravages during the whole of that year, and still prevailed, cases of a severe and fatal character continually occurring; is that so?—It is so stated in the report.

39. I find in the fever hospital report for 1852 that the number of patients in that year amounted to 102, of which number twenty died; that many of the deaths arose from a bad form of confluent small pox; and that an epidemic of this fearful disease had been prevalent in the town and neighbourhood during several months?—I find that to be so stated.

40. Simultaneously with the scarlet fever mentioned in the previous instance?—Yes.

41. Were those epidemics, do you think, confined to the same localities?—I am not aware that they were.

42. Is it stated in the fever hospital report for the year 1851, that out of the 119 cases admitted in that year, seventy-three cases were sent in from the parish of All Saints alone?—It is so stated in the report.

43. Do you remember the prevalence of fever in the year 1852-53?—I do.

44. Was that fever severe in its nature?—It was not so severe as some I have known.

45. I find it stated in the fever hospital report for the year 1853 that the diseases connected with fever during the past year had been most formidable, not from their number, but their fatality and extraordinary malignity; and that out of seventy-two cases admitted fifteen were fatal—is that statement correct?—I believe the report to be correct; but only a small number was admitted, and the fatality arose from the peculiar symptoms.

46. The high rate of mortality of fifteen out of seventy-two was owing to peculiar

circumstances?—I believe it was. I do not know it of my own knowledge: I know that Report, and I believe it to be correct.

47. I see by the dispensary report for 1853, that in August last or thereabouts, diarrhœa infantum prevailed to a great extent, and was of a very fatal character, and shortly afterwards you had the visitation of cholera?—We had.

48. Were its attacks at all confined to any particular class? Was diarrhœa, I mean, confined to any particular class?—No; it was more universal than any epidemic we have hitherto had.

49. Was the mortality confined to the lower classes, as in the previous outbreak?—No, it was not; it extended over the whole town.

50. Did it reach the highest as well as the middling classes?—The highest as well as the middling.

51. Do you know, from your experience as a medical man, whether a great many of the families of the gentry left the place?—A great many.

52. And that would account for the mortality among the gentry not having been greater than it was?—Of course, it would not affect those who were absent.

53. In respect of the assertion that this last outbreak has been unprecedentedly severe, would you understand it in respect of the extent of the attacks of the disease, or in the severity of the attacks, or how?—In the extent of the attacks—the numerous instances of its occurrence. It was also very severe.

54. In the proportion of deaths to attacks was it markedly more severe than previous outbreaks?—I should not think so.

55. You would understand the alleged excessive severity of the outbreak then as having reference to its extent?—To its extent. I am not able to state from my own experience, or from the calculations that I have received, whether it was more fatal than formerly in proportion to the number of attacks.

56. Was the mortality under this last outbreak confined chiefly, or in any degree, to the old seats of Irish fever and of cholera in 1831?—Certainly not; it extended over the whole town, and to places usually considered healthy.

57. Was the intensity of the mortality the same, or nearly the same, in all the different districts?—I should think it was. Of course it was more severe in unhealthy places, where a person had less chance of escaping, and where he was under unfavourable circumstances.

58. Were there special localities in which the disease seemed to be more intense, and in which the mortality was greater than in others?—I think that that certainly was the case.

59. Were these places where this greater intensity of the disease prevailed the same as had been visited by a greater intensity of cholera and Irish fever in previous years?—I think not; there were other places equally unfavourable to recovery, as the low parts of the town or the parish of All Saints. Higher parts of the town were similarly circumstanced with respect to unhealthiness.

60. Besides the old seats of disease, there were other and, so to say, new seats of disease, in which it prevailed with equal intensity as in the old?—Yes.

61. You do not say that the old seats of disease were spared, but that new seats of disease were visited with equal severity?—That is my opinion.

62. In the dispensary report for the years 1845, 1846, and 1848, I find that there occurred in those years several cases, including one unusually severe and fatal case, of cholera, viz., in November, 1847?—I see that that is there stated, and I believe it to be correct; but sporadic and fatal cases of cholera have prevailed in this town and neighbourhood from the first outbreak of cholera up to this time.

63. Since 1831 cholera has appeared from time to time sporadically down to the present day?—I think so.

64. Has typhus or scarlatina, or any other form of continued fever, habitually been prevalent to a greater or less degree when it could not be said to be prevalent in an epidemic form? That seems to be implied by the dispensary report for the year 1849, does it not?—Typhus fever prevails in all years in individual cases, I believe.

65. Do you then, taking a *review* of what we have gone through, consider that the borough of Newcastle has, in the language of certain complainants, been visited by a complete succession of epidemics from the year 1831 to this time?—I consider that disease has been prevalent epidemically at different periods both in town and country. I consider that these epidemics have prevailed time out of mind in all towns and in country places also. As far as I have observed, in country villages these epidemics have been quite as prevalent as in large towns; both scarlet fever, measles, and fever.

66. Do you think that Newcastle, since 1831, has suffered a greater number or a greater intensity of epidemics than other places?—I do not.

67. I have here a paper furnished to me by the Registrar General, containing a statement of the rates of mortality during the successive years from 1839 to 1853 from all causes, and during a certain number of years from zymotic disease specially. I see it is there stated that in 1839 the mortality rate was 30·7 per thousand. Do you not consider that a high rate of mortality?—I should consider it was.

68. In the year 1840 it was 27·8?—That of course is less.

69. Is that what you would consider a reasonable rate, or an improperly high one?—I should think it was rather high also.

T. E. Headlam, Esq., M.D.

19th Jan. 1854.

70. In 1841 it was 29·2, that is also high?—Yes, I cannot pretend to speak to statistical returns with any particularity.

71. In 1846 the mortality rate reached 36·2 per mille, that I presume would be very high?—Yes.

72. In 1847 it reached 32·8, that is also high?—Yes; anything above thirty would be high.

73. In 1848, it was 27·3; in 1849, 29·1; in 1852, 29·7; and in the year 1853, 43·3—I presume that that you would consider a very high rate?—Yes.

74. You have no statistical knowledge yourself of the exact number of deaths that took place during the last outbreak?—I have not.

75. Now with reference to the circumstances which may have attended, and may be supposed to have been the causes of, previous epidemics, is it within your recollection that the water failed in the year 1831?—It was supposed that it failed at that time; it was complained of. About that time, I do not exactly remember when, but it was in consequence of complaints of that kind, that the water company was established.

Vide Q. 5307 post.

76. I see it stated in the eighteenth page of a pamphlet, entitled "The History of the "Water Supply of Newcastle-upon-Tyne," that in the summer of 1831, a large underground reservoir at Cox Lodge, theretofore deemed inexhaustible, and which was then the only source of supply to Newcastle, became completely dry; and that in this emergency the company were reduced to the necessity of erecting an engine for pumping water from the river, and that no fewer than 120 water carts were employed daily for six weeks in carrying the unfiltered water to the Company's tenants; do you believe that to be a correct statement?—I believe it is; I remember perfectly that for the purpose of my stable and coach-house water was carted.

77. Do you remember the impression then entertained by the medical profession generally as to the causes which were likely to aggravate the virulence of that epidemic?—I do not recollect so much attention being paid to it at that particular time.

78. I was going to allude to points of cleanliness, both in person and in dwelling and in thoroughfare. Were those points then looked upon by the medical profession generally, as of importance with a view to the preservation of health from attacks of cholera?—Unquestionably they were considered important; but not of the same importance then as they have been latterly.

79. I see in the dispensary report for 1847 that the ravages of the then epidemic of scarlet fever, although, like epidemics in general, it was chiefly felt by the poorer classes, were far from being greatest in the lower parts of the town; and that the disease was fearfully fatal in confined courts where drainage was superficial, filth accumulated, and the houses were devoid of proper means of ventilation; do you think that a proper and correct view of the matter?—I believe that is correct. At the same time I have stated before that I have known the epidemic of scarlet fever particularly, as virulent in country villages as I ever saw it in large towns.

80. What was the state of those country villages, in respect of what we may call sewerage and drainage, and ventilation and over-crowding?—I am not aware that there was anything particularly attached to them, because it was not confined to any one country village; they would be deficient in drainage generally probably.

81. If it were suggested that those circumstances of bad sewerage, want of cleanliness, and so on were always present in the main haunts of typhus, scarlet fever, &c., would you consider that a correct statement?—I would say that it increased the tendency to the prevalence of the disease, but I should not say that it was universally the case.

82. Again, in reference to the then simultaneous epidemic of Irish fever the same report states, that it was surprising that that disease, introduced as it had been by Irish immigrants, had not spread more extensively than it had among the inhabitants, when the crowded state of the lodging houses and tenements in the lower parts of the town was considered. That the extensive railway operations then in progress had contributed much to this overcrowding, not only by bringing in an immense number of workmen, but by causing the destruction of a considerable portion of property inhabited by great numbers of the poorer classes, who had then been obliged to take refuge in quarters already too numerously occupied; that in many instances six beds had been found in one room, each bed occupied by a family; the rooms being almost entirely devoid of ventilation, and, with the alleys in which they are situated, in a most filthy condition, and so on. Do you find that so?—I find that so stated there.

83. In the fever hospital report for 1847 again, I see it suggested that there were here in Newcastle rooms so badly ventilated, and so filthy, as to warrant the fear of an epidemic disease being generated amongst them without any actual importation of it. Do you think that filth and want of ventilation are capable of such an influence?—I do.

84. And in the fever hospital report for the year 1848, I see it stated that nothing can be more ingeniously adapted for the engendering or disseminating of infection, than the trampers' boarding house, or the tenemented dwellings of the lower Irish; that here fever has its constant home; and that from hence, when aggravated by privation, epidemic influence, or other depressing cause, it spreads abroad. Do you concur in the opinion expressed there?—I do.

85. In the year 1847, I believe, a Newcastle and Gateshead sanitary association was formed, was it not?—I believe it was; I do not exactly recollect the time.

86. Were you not a vice president of it?—I was a member of it, but I do not exactly recollect when it was formed.

87. You were vice president of a sanitary association, formed about that time?—Yes, I was a member of it; I am not aware whether I held that office.

88. Can you remember what is stated in the dispensary report for 1847, viz., that on the recommendations of that association, the local authorities removed immense accumulations of filth from several crowded localities, and otherwise improved the sanitary condition of the place?—I did not attend frequently, and I am not aware of the proceedings of that association.

89. Are you not able to speak generally as to the operations of the local authorities then in the improvement of the town?—The local authorities did improve the town, but I am not aware upon what suggestions.

90.—They did, however, improve the town; the town was improved?—Yes; my impression was that great efforts were made to improve the town, during what we called the Irish fever.

91. In 1848-49, I believe you had another attack of cholera in this town?—We had.

92. It was light as compared both with the previous and the subsequent attacks?—It was.

93. Was water at that time abundant and good?—It was.

94. I see it stated in this history of the water supply that many parties ascribe the exemption, or comparative exemption, of the town from the visitation of cholera, which, in the summer of that year attacked with fatal malignity most of the large towns of the kingdom, to the attention paid by the corporation to the cleansing of the town, and to the plentiful supply of pure water which the inhabitants were then enjoying?—Yes.

95. Do you agree in the opinion there expressed?—I do.

96. And would you say generally that the lightness of the outbreak of cholera in the year 1848-49 was mainly due to the comparatively good state of the town in a sanitary point of view?—I should say that it was very much influenced by that.

97. In the year 1850 I believe you were physician in attendance at the fever hospital?—I was.

98. Did you in your report for that year state that fever had not prevailed extensively during the last year, and that that might be attributed in a considerable degree to the sanitary measures of removing the accumulations of decomposing animal and vegetable matters from the most crowded parts of the town, which were adopted in consequence of the previous prevalence of fever, and in anticipation of the approach of epidemic cholera?—I so stated it, and I believed it to be correct.

99. And you retain the same opinion still?—I do.

100. In the year 1850, do you remember that water failed again?—I know that it did.

101. And that the water company were obliged to pump from the Tyne?—I do know that that was the case.

102. We have seen by the reports of the dispensary, and of the fever hospital, for the years 1850 and 1851, that scarlet fever was smartly epidemic in the autumn of that same year, 1850, and that the continued and typhus fever cases were nearly doubled, and were of a more urgent character than in the previous year, presenting many of the characteristics of the great epidemic or Irish fever of 1847-8. Do you think that the failure of water in the summer of 1850, and the prevalence of typhus and scarlatina in the autumn and spring following, was merely a coincidence; or that there was a relation of cause and effect between them?—I cannot state distinctly.

103. Can you favour us with your impression as to whether the general use of Tyne water in the summer of 1850 would have any effect on the prevalence of typhus and scarlet fever in the autumn of that year, and subsequently?—I should think it would be prejudicial generally to health.

104. And whatever is prejudicial generally to health encourages I presume the spread of fevers and epidemics?—It would increase the prevalence and the fatality of epidemics.

105. The dispensary report for the year 1852 states, that the fatal issue of some of that year's fever cases seemed to be caused or hastened by the dark, dirty, damp dwellings in which the patients were confined, many of them not being fit for the habitation of human beings. Is it your opinion that that is a correct statement?—It is there stated, and I believe it to be correct.

106. Again, in the dispensary report for 1853, it is stated that a very large number of cases of illness occurred among persons residing in the most crowded and filthy rooms, possessing no means whatever of ventilation, so that the air was of the most vitiated and stifling description; that the maladies affecting patients of this kind are usually of the most fatal character, for the crowded state of patients' rooms, especially during the night, has a very deleterious influence, and contributes materially to the development of the worst features of disease. Do you entertain the same opinion as is there expressed?—I certainly do. Nothing is so unwholesome as the crowded rooms of poor people, and the foul air that is there generated.

107. Are you aware that almost every report of the dispensary and of the fever hospital urges the removal as speedily as possible from such ill-conditioned places of all persons attacked with any form of fever or disease, as the only proper means of procuring a favourable termination?—Certainly.

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108. When the cholera of this last year was approaching, did the medical profession generally entertain the same opinion as to the precautionary measures most likely to mitigate and palliate its ravages?—I am not aware of the opinion of particular members of the profession; I consider that those opinions were well established amongst all medical men.

109. That the prevalence of epidemics generally depended very much on the co-operation of certain local causes, such as filth and want of ventilation, and so on?—Yes; that anything which impairs the health of the people must increase both the prevalence and the intensity of an epidemic. Nothing does so much as the impure air which they breathe.

110. You have no belief that cholera or zymotic disease generally is a visitation wholly beyond human reach or control, or incapable of mitigation by care and attention?—Certainly not.

111. And without entering into any recondite questions of ultimate causes, specific poisons, and so on, do you doubt that the prevalence of this late epidemic has been materially aggravated by the presence in this town of serious sanitary evils?—I do not know to what extent you wish me to give an opinion upon that point.

111a. What is your impression?—I have stated before that this epidemic prevailed generally over the town both in healthy and unhealthy localities; but I have no doubt that the unhealthiness of a locality adds very much to its prevalence and its intensity.

112. When you state that the recent outbreak of cholera prevailed extensively in what you would call healthy districts, are you well satisfied that those districts were in a healthy state as regards sewerage and drainage, ventilation and water supply, and other points of what we should call sanitary good condition?—I am well aware that there may be great imperfections in all those localities, and that a house apparently healthy may be subject to causes of disease which are not palpable and evident. There is no doubt about it that those causes do increase, as I said before, the prevalence and the intensity of the disease.

113. You stated that you thought the recent outbreak of cholera had prevailed in healthy localities. Do you think that those were localities which were well sewered and well drained?—I cannot answer for each particular house; but I am talking generally of the more airy parts of the town.

114. I want to understand what you mean by the word "healthy," as applied to those districts. Would you call a district healthy without knowing what its condition as to sewerage and drainage might be?—Certainly not absolutely, but comparatively. If you have a wide street and good houses you would call it generally a healthy locality. It is in contradistinction to those localities which you have before described as the seats of fever, the seats of the Irish fever particularly.

115. Then, when you say that the recent outbreak prevailed in healthy districts, I understand you to mean to say that it prevailed in districts which, from their position and general appearance, ought to be healthy?—Yes, certainly.

116. You do not state of your own knowledge that they were healthy in a sanitary point of view?—I have known cases where the disease occurred in this epidemic, where, according to everything which I have observed, the house was a healthy house.

117. What might the condition of the immediate neighbourhood be?—I should say generally good. I am referring to streets in the higher part of the town,—such streets as Blackett Street and Northumberland Street.

118. Are those streets adequately sewered and drained?—Yes; I do not answer for the connection of the houses with the main sewers.

119. Can you answer for the healthiness of a district in a sanitary point of view without knowing what its condition is in respect of house-drainage or house-connection with main sewers?—You will remember that I am not stating an opinion myself with respect to the healthiness of these houses or streets; I am stating it comparatively; I am stating it in opposition to those localities which are denounced as unhealthy.

120. *Mr. Simon.*—Inhabited by a higher class?—Inhabited by a higher class of people.

121. *Chairman.*—Then, may I understand the upshot of your evidence on this point to be this,—that the outbreak of 1853 prevailed not only in the old seats of disease, but in others which, heretofore, had not been regarded as unhealthy?—Yes; which were not subject to the disease in former times. Of course I do not answer for the perfect sanitary condition either of any street or of any house.

122. But you speak from a general impression as to what the state of those houses and districts ought to be?—Yes; and as compared with what they were in former epidemics.

123. Has it been suggested by any members of the medical profession that this outbreak has been due to any importation from abroad?—I am aware that there are different theories upon the subject; but those I do not enter into.

124. Have you heard any facts alleged bearing upon that point; as for instance, whether any ships had shortly before the outbreak come into the Tyne river from infected localities?—These are chiefly speculations of people who have discussed the subject of contagion. I have not heard any facts that dwelt much upon my own mind.

125. In the fever hospital report for 1847, it was stated that the condition of some of the houses, in respect of filth and ventilation, was such as to warrant the fear of an epidemic being generated in them without any actual importation from abroad. What I want to ascertain from you is, your impression as to whether the event thus fore-feared has come to pass?—Do you mean the epidemic of cholera?

126. As to whether this epidemic of cholera in 1853 is an instance of a generation of disease within a locality without any actual importation?—I should think by no means. I should think that the spread of cholera has been distinctly traced, as on a former occasion, in its course, without the unhealthiness of any locality being the cause of it.

127. When I speak of importation, I mean such an importation as quarantine regulations or sanitary cordons could resist. I do not speak of an importation by atmospheric influence?—I should consider that it was an importation as far as the state of the air went.

128. Not an importation by ship or by infected person?—No; I should think not, nor by contact.

129. Such as any quarantine regulations could resist?—I do not think it was. I do not, however, believe that that disease would be generated by the unhealthiness of a locality,—of course an unhealthy locality would predispose to the influence of any epidemic, whether influenza or fever, or anything else.

130. Have you paid any attention to the geology of the district, so as to be able to say what kind of soil Newcastle is built upon?—I believe there are varieties of soil in every part of it—the clay and the sand are mixed throughout.

131. Supposing it should hereafter appear in evidence that the surface soil of the greater part of Newcastle is clay, or loam approaching thereto, I presume you would consider that a character of soil specially requiring drainage to make it healthy?—Certainly.

132. Have you any opinion as to the state of the drainage in Newcastle generally?—There has been a great increase of the sewerage in Newcastle. I believe that improvement is necessary.

133. I presume you would consider dampness of sub-soil prejudicial if not provided against by drainage?—Particularly prejudicial to health.

134. The moisture would be absorbed into the walls, would it not?—It is in all cases prejudicial to health—nothing more so.

135. What would be the ordinary results of dampness of dwelling in respect of diseases?—I consider that it weakens every constitution living in a damp atmosphere of that kind.

136. If it were suggested that rheumatism and catarrh, and certain other diseases, were owing to the dampness of the dwellings of a large portion of the Newcastle population, would you consider that a proper suggestion?—Of course it is prejudiced by want of drainage.

137. I see by the reports of the dispensary for the years 1844 and 1846, and in many of the others, that rheumatism and catarrh are said to have been prevalent "as usual." Do you think that that usual prevalence of those diseases is ascribable to the deficiency of drainage in Newcastle?—I can see a very great difference in the course of my practice in the prevalence of those diseases; they are not nearly so prevalent as they were formerly. Confirmed ague was a common disease in this district when I first began to practice here; it is not now.

138. Is ague generally caught, if I may use the expression, in country districts, or in town districts?—Chiefly where there is a cold clay soil, or where there is great damp.

139. Referring to the infirmary report for 1851, which states that cases of ague occurring from the miasms expelled by the badly drained lands of the neighbourhood were formerly very commonly met with, but are at present very rare, and that this fact proves the great advances which agricultural improvements have made in the surrounding counties during the last few years, and the influence which such improvements have upon the general sanitary condition of the population,—are you of opinion that these once common ague cases were owing to the state of the country in the vicinity of Newcastle, or owing to the state of the town itself?—The vicinity of Newcastle.

140. And would you consider that catarrh, rheumatism, and the other matters might be owing to the state of the dwellings in the town itself?—It might; but it may also be very much owing to the climate of the district, the narrowness of the island here, and the approach to the sea coast.

141. Has the disappearance of the ague cases from the medical institutions of the town any direct or necessary bearing on the improvement of the town; or would you judge it to be owing mainly to the improvement of the surrounding country?—Both.

142. Have the cases of rheumatism and catarrh, and others, which I have imagined to proceed from the state of the dwellings in Newcastle, decreased as rapidly as the cases of ague, which are alleged to depend on the condition of the country round?—The diminution of the cases of ague is very distinct in my recollection; but I think that the others have diminished also.

143. Did I understand you to say that the cases of rheumatism and catarrh, &c., had decreased in as great or as rapid a degree as the ague cases?—The effect is not so distinct, and therefore I cannot speak of it so decidedly; but I imagine they have decreased in a similar proportion.

144. Considering the state in which the surface of a large portion of the soil of Newcastle generally is, or in which we have seen it, at all events; that is to say, covered with all kinds of filth, would you not consider that the want of drainage in such a locality was specially likely to damage the health, owing to the evaporating moisture carrying along with it into the air the exhalations of this fœcal and other filth?—I consider that damp would increase the injurious effects of a concentration of decomposed animal or vegetable matter

145. And that the want of drainage is a more serious matter in proportion as the surface

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of the soil is covered with filth?—I should say that it is the want of sewerage; perhaps you call that the want of drainage.

146. With reference to the state of the water during the past year, I suppose, as a medical man, you found it necessary to take notice of the state of the water which your patients might have given them to drink?—Great complaints were made of it, certainly.

147. Can you remember the quality supplied by the Whittle Dean water company previously to the 5th of July, when they began to pump from the Tyne?—I do not recollect it exactly at that date.

148. Was the character of the water complained of before it was generally understood that they were pumping from the Tyne?—During the summer and autumn it certainly was much complained of, both from its quantity and quality.

149. But you cannot speak as to any differences in the water, or in the complaints, before and after the period to which I have alluded?—Not precisely.

150. What was your impression as regards the quality of the water, such as it was, and wherever it came from?—At what time?

151. At the time when the complaints were made.—I consider that it was certainly unfit for drinking.

152. Is the water usually good?—Very good when it is in abundance—when it is reduced in quantity it becomes sometimes less so.

153. *Mr. Town Clerk.*—When lowered in the reservoir, you mean?—Yes.

154. *Chairman.*—Have you ever yourself made, or been present at the making of, any analysis of the water?—I have not.

155. It has been stated, or rather will be stated in evidence, that on the 15th of September the company ceased to pump from the Tyne, and began to take water from the river Pont, and that within a very few days after that time the virulence of the cholera materially diminished. Do you think that that was merely a coincidence, or that it was a matter of cause and effect?—I think that probably the epidemic, having lasted a certain time, might be subsiding; and that it was a coincidence.

156. Do you think that the cholera would have moderated at the same time as it did, supposing the supply of water from the Tyne had not been abandoned?—I should not like to give an opinion; I cannot give an opinion.

157. Have you any knowledge of the state of the wells or springs in this town?—We have tried to get drinking water from those wells; some of them were not deep enough, and they contained organic matter.

158. You have no intimate knowledge of the subject?—No intimate knowledge.

159. With reference to the gas, concerning which complaints have been made to us, have you any opinion on the subject, viz., as to whether it be good or bad, or have any influence on the public health?—It would not enter into this inquiry, but at the same time the general impression is that it is not good.

160. Supposing a considerable amount of non-inflammable impurity to be evolved into the air during the combustion of the gas, could that have any prejudicial effect on the health of shopkeepers, who employ gas largely in their houses?—Unquestionably it would. People in confined situations, exposed to the effluvia of bad gas, might suffer from it.

161. Are you a member of the Literary and Philosophic Association of this town?—I am.

162. Have you heard it stated by the librarian there that the binding of the books had been so much damaged by the gas there that they had had to re-bind several volumes?—I have.

163. And that by wetting your finger and passing it over the binding of a book, you could taste the sulphuric acid?—I am not aware of that effect, but we thought it right to have ventilating lamps.

164. Have you heard it stated that the fluid condensed in the glass vessels above the tubes of those ventilating lamps was palpably charged with sulphuric acid, so that it could be tasted?—I have heard it stated so.

165. Do you believe it to be correct?—I do.

166. Do you think that that would indicate any probability of the gas having had a bad effect on the public health?—I conceive that all gas which escapes into a confined room would be unwholesome.

167. I am not speaking of the escape of gas itself, but the escape of non-inflammable impurities during the combustion of the gas?—I believe that the escape of such impurities would be prejudicial.

168. You think that it might lower the general health of shopkeepers?—Yes.

169. And it is, I believe, a fact that that class was pretty considerably visited during this last epidemic?—I cannot pretend to give an opinion to what extent it might be so.

170. You do not know how far that may have had an influence?—I do not attach much importance to it.

171. You do not think that it would have had any material or important effect?—I think that being in a confined place, exposed to bad gas, would be unwholesome. Anything that impairs the general health would be prejudicial.

172. You do not think that it would be specifically or markedly so?—No.

173. You have no knowledge, I presume, of the actual state of the sewers and drains in this town?—I cannot give any evidence upon that subject.

174. You were a member of the Sanitary Committee of the Eastern District, formed of members of the Board of Guardians of this town and other persons, in 1848, were you not?—I do not recollect whether I was or not.

175. You did not attend it much. I know that your name is down as a member of it?—I did not attend it.

176. You are not cognizant of its transactions?—I am not.

177. Your practice does not lead you much among the lower classes?—Not except in connexion with the patients of the public institutions.

178. You have no opportunities of knowing accurately the state of their habitations?—Merely as visiting them in consequence of this attack of cholera. I saw a great many of them.

179. You were chairman of the Sanitary Committee, composed jointly of the members of the Town Council and of the Board of Guardians, during this late outbreak, in 1853?—I was.

180. Have you any opinion to offer on the state of the town in respect of scavenage?—Great attempts have been made in that respect. It is better than it was some years ago. An attempt is now making to improve it as much as possible.

181. Have you any opinion as to the state of the town in respect of scavenage previous to the outbreak in August, 1853?—I do not believe it was particularly deficient then. I believe it is much better than it was some years ago—better than in 1848, certainly.

182. Do you mean to say that it was in fact deficient, but not particularly deficient as compared with previous years?—I do not think it so good as we could wish it to be, but it is much better than it was some years ago.

183. Did you in the year 1847, as a member of the Sanitary Association, visit the Corporation property in Sandgate, with Mr. Newton, the parochial medical officer?—I believe I visited it, and I dare say with Mr. Newton.

184. Do you remember the impression which you then formed as to the state of that property generally in respect of its sanitary condition?—I am not aware that I derived any impression in respect of the Corporation property there in particular; but I visited some of the habitations in Sandgate, which were certainly very unwholesome.

185. Habitations indifferently belonging to different owners?—Yes.

186. I think in your report, as physician to the fever hospital, for 1850, soon after the establishment of some public baths and washhouses in Sandgate, you congratulated the community on their establishment, and expressed a hope that the same benefit might soon be extended to other populous districts; did you not?—Very probably I might; I do not recollect. I considered them a great advantage.

187. Have you any personal knowledge as to the extent to which they have been used, or the extent to which their use has been impeded by any particular circumstances?—The only establishment in the town has been very much used. I am not aware of anything particular.

188. You have no intimate knowledge?—I have examined it frequently.

189. Have you found it as extensively used as such an establishment might be?—I should think so.

190. You have never heard any complaints?—I have not heard any complaints, except with respect to the use of the plunge bath, which was supposed to be useful.

191. You have heard nothing of any complaints as to regulations which might tend seriously to check the use of such an establishment?—I have not.

192. Have you considered the instance of the comparative immunity of the garrison in this town during this last outbreak?—I have not.

193. Have you at all entered into the consideration of the expense which may have been caused to the community by the recent outbreak in respect of poor rates or expenses, stoppage of trade, or in any other form?—I have not entered into that. I know that it must have been expensive in the increase of poor rates and injurious to the trade of the town.

194. You were present here during the whole time of the outbreak?—I was.

195. Are you cognizant of the efforts made by certain officers of the Board of Health in aid of the Board of Guardians, to palliate and mitigate the virulence of the outbreak?—I was cognizant of the conduct of the officers sent down to assist the town authorities.

196. Have you any opinion to offer with regard to the conduct of those officers?—I considered them very praiseworthy. I considered them very energetic in their conduct. I do not enter into the question about the propriety of the regulations that might be issued by the Board of Health. I have nothing to do with that; but with respect to the conduct of the officers, nothing could exceed their assiduity and anxiety to be of service to the town.

197. Would you countenance any allegation to the effect that their conduct, or the measures adopted by them in pursuance of their duty, were not such as to merit the approbation of the medical profession and of the community at large?—I do not sanction any such attack upon them.

198. Have you any opinion on the other hand as to whether the measures suggested by, and adopted in consequence of the suggestions of, those officers, had any influence in arresting the spread, or mitigating the virulence of the epidemic?—I think they were of great service.

199. With reference to the report of the committee of the Town Council, appointed during

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the recent outbreak, to act with the Board of Guardians, and of which you were chairman would you object to put in your report as evidence?—This is the report of the Sanitary Committee. I put it in as evidence. I have no objection to publish it.

200. Have you any objection to confirm now the opinions there stated?—I have no objection to confirm the opinions in that report,—not the least.

Report of the Committee of the Town Council of Newcastle-upon-Tyne, appointed to act in conjunction with the Board of Guardians, during the prevalence of Cholera, 1853.

"Since our appointment on the 14th September last, we have sat from day to day in the discharge of the duties confided to us.

"The first step which we took was to obtain from the Whittle Dean water company an engagement, that no more water should be supplied to the town from the impure source of the Tyne, in the vicinity of the sewerage of the town, which had been used from the 5th of July last, at which date the company seem to have begun to doubt the sufficiency of their means of supply to meet the demands of the town. We obtained the engagement of the company on the 15th September; and we believe that the company have faithfully adhered to it; and that, in point of fact, from that date no water has been drawn from the Tyne. The late rains have, we hope, secured the inhabitants against the recurrence to such a practice, until more certain sources of supply than those which the company now appear to possess, can be secured for the town.

"We lost no time in applying a portion of the fund placed at our disposal for purposes of expenditure, not within the power of the Board of Guardians, in providing and fitting up a building as a place of refuge for the reception of families removed from localities in which the cholera was prevalent. The Board of Ordnance sent down, on the 19th September, 200 military tents, with the object of their being used as a place of refuge for persons removed from unhealthy residences. We ordered a portion of these tents to be pitched on the town moor, with every necessary convenience; but it was found impossible to prevail upon any individuals to remove to them. Some tents of another description were erected on the moor by the proprietors of the Spital Tongues Colliery with better success. They were the large tents of planks and canvas used by publicans at fairs, and contained fire-places. These tents were inhabited, and the inhabitants escaped the cholera. The building provided and fitted up by the corporation was also extensively used and with good effect.

"The burial of the dead was a subject that pressed much upon us; it was clear that all the churchyards of the town, save those of St. Ann's and St. Paul's, were so crowded as, in ordinary times, to be unfit for the reception of any more bodies; and in a time of pestilence, nothing could justify their use. They have been entirely closed for the present; and we availed ourselves of the occasion to address a communication to the churchwardens of the several parishes, suggesting to them the expediency of looking out immediately for new places of interment, as, from the 4th of August in next year, most of the existing church-yards will, under the provisions of the Town Improvement Act of last session, be virtually closed.

"Those densely populated and improperly constructed streets and alleys which necessarily exist in all large towns, and particularly in the ancient parts of them, have received our anxious attention. Sandgate has existed as it now exists for hundreds of years; and in its narrow passages and ill-ventilated dwellings, there is no doubt the cholera has raged with peculiar virulence. Some modern streets and lanes have been formed by speculators in those townships which were added to the borough under the Municipal Reform Act, which are scarcely less calculated to generate disease than the closely packed habitations of Sandgate. The Council had no control over the streets and roads of these townships till the passing of the Town Improvement Act of the present year, which received the Royal Assent on the 4th of August last. The Council will doubtless give their early attention to the state of the streets and roads in these townships; and in the meantime the powers of the Act of last session have been usefully employed, under our directions, in closing up houses in all parts of the borough which were pronounced unfit for human habitation.

"The limewashing of unwholesome houses, and the cleansing of the streets and courts by means of the hose, and spreading hot lime, and the application of stench traps to the grates of the common sewers, are operations which have been deemed important and have been energetically pursued. The situation of the town, on the sides of hills, with a steep descent to a fine river is peculiarly favourable for drainage, and of late years there has been a large expenditure in the formation of common sewers. The benefit derived from these sewers has been comparatively trifling, for want of an underground communication between them and the dwellings of the inhabitants who have persisted in depositing their filth in the gutters or in the open grates of the sewers. By the Act of last session, the Council obtained a power to force the proprietors of the houses to make and maintain underground communications with the common sewers. There has not yet been time to put this Act in force. In the meantime we have applied lime to the surface gutters and the open grates, and also, with good effect, waste chemical products, possessing disinfecting qualities, which have been supplied by our colleague, Mr. Bell.

"Up to the present time, the Nuisance Removal Act, 1848, so far as it has been put in force, has been under the direction of the Board of Guardians. In the Town Improve-

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ment Act of last session is an enactment that the Nuisance Removal Act shall be put in force by the council. In order to secure the speedy removal of existing nuisances we issued a public notice that the council would proceed to put in force the Nuisance Removal Act, 1848, and invited communications from the inhabitants, and we employed additional inspectors of nuisances.

Report of Joint Committee, &c., October 1853.

"Under the advice of Mr. W. Lee, a superintending inspector of the Board of Health, who was sent down by the Board for the purpose of giving advice, instead of attempting to remove, during a state of pestilence, the accumulations of dung, litter, and ashes, mixed with vegetable and animal refuse, which are collected in various parts of the town, we have covered them for the present with common earth, freshly dug up, waiting a fit season of removal.

"The slaughter-houses are found to occasion or aggravate many of these accumulations of offensive matter. Under the Town Improvement Act of last session all the existing slaughter-houses must be registered, and the council have the power of making such byelaws for their regulation as will effectually prevent nuisance. In future no new slaughter-house can be established without the licence of the Council.

"The nuisances produced by the want of a sufficient number of common privies, and the absence of private conveniences of that sort are not such as can be at once obviated. We have, however, instituted proceedings with that object. The practice of keeping pigs in improper places in the town has been found to be productive of much annoyance to the inhabitants. We have found the existing byelaws sufficient to suppress the practice.

"So soon as the account can be collected, a statement will be prepared, showing the manner in which the funds placed at our disposal have been expended.

"The cholera having passed from the town, the purposes for which we were appointed have been fulfilled, and our duties are ended. At the risk, however, of appearing to exceed our authority, we venture to place before the council some suggestions for the future.

"The first and most important object, and one on which the health of the town greatly depends, is to secure a plentiful and never failing supply of wholesome water. The strata upon which the town is placed are full of springs, from which may be derived abundance of drinking water of excellent quality. We have directed some boreholes to be put down in various localities, and the experiment has been attended with satisfactory results. We do not hesitate to express our opinion that the council will be able to obtain from these sources, and from springs in the neighbourhood of the town, an abundant supply of pure and wholesome drinking water, which may be distributed throughout the town and placed gratuitously at the disposal of the inhabitants by means of pumps and pants erected in the most convenient localities. So far as regards water for the purpose of drinking, the town will be thus rendered independent of any water company now established, or hereafter to be established. At the same time, steps, in our opinion, ought to be taken by the council which shall give to the town the certainty of a continual supply of good water, for general purposes.

"The increase and extension of a system of public baths and wash-houses which has been so advantageously begun, and to a limited extent carried out, will tend much to promote the health and cleanliness of the town, and can be effected with very trifling pecuniary sacrifice on the part of the corporation.

"The greater part of the suburb of Sandgate is not fit to be inhabited, whilst its site is valuable for commercial purposes. The corporation have already purchased a considerable house property in that locality, with a view to its being pulled down, and are extending those purchases. An early opportunity ought to be taken to clear away these buildings. In doing so, it must not be forgotten that houses must be provided *elsewhere*, to receive the population which will be thus displaced; an example ought to be set by the corporation, or by individuals, in constructing houses for the habitation of the humbler classes with those conveniences in which so many of the existing houses are so entirely deficient.

"The council have now obtained from the legislature powers, which will enable them to exercise a considerable influence in the construction of dwelling houses which shall hereafter be built in the borough.

"Those streets and lanes beyond the limits of the ancient borough, which, by the Act of last session, have been placed under the control of the council, and in or about which a large population is located, will demand immediate attention.

"It will be right that no time should be lost in passing byelaws for the regulation of existing slaughter-houses. By these byelaws it should be provided that all animal matter should be removed within twenty-four hours after its deposit. With a view to the introduction of a better description of slaughter-houses, and with a view to placing them in unobjectionable situations, we would recommend that the council should themselves fit up slaughter-houses, and let them to the butchers at moderate rents. The arches under the Newcastle and Carlisle Railway, west of the Infirmary, with part of the adjoining ground, might be advantageously applied for that purpose. The situation is desirable as regards its contiguity to the cattle market and the facilities of drainage which belong to it.

"The provisions of the Common Lodging Houses Act, 1851, have been, to a considerable extent, carried out by the police, though, till their last meeting, the council did not make these minute regulations for the government and management of those lodging houses which have now been adopted. The attention of the Watch Committee is at present directed to giving effect to the Act and to these regulations.

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"The consumptions of smoke, if daily enforced under the powers of the Town Improvement Act of last session, will tend much to the health of the inhabitants, and, combined with complete drainage and an ample supply of good water, will render the presence of epidemic disease for the future less formidable.

"We conclude this our report by recommending to the council the appointment of a committee for general sanitary purposes.

"T. E. Headlam, Chairman."

William Lee, Esq., C.E., sworn:—

W. Lee, Esq., C.E.

201. (*Chairman.*) You are a superintending inspector of the Board of Health in the engineering department, are you not?—I am.

202. How many years have you held that position?—Ever since the Public Health Act was passed in 1848.

203. Did you previously to that time give any marked attention to what are called sanitary matters?—I had done so, and was officially engaged in a large provincial town as early as the epidemic of the year 1832.

204. Have you, from the time of the cholera in 1832, continued to pay attention to sanitary matters?—I have. I also visited many towns in 1848 and 1849, during the existence of the then epidemic cholera.

205. At what date did you first visit Newcastle?—I believe on the 22nd of September 1853, about the day or the day before the disease was supposed to have reached its maximum.

206. You were sent down by order of the General Board of Health?—By order of the General Board to aid the local authorities in any measures of repression or palliation falling within my department.

207. Did you personally inspect any parts of Newcastle?—I did. Before meeting the authorities I thought it would be well that I should examine for myself the whole of the districts where the pestilence was then raging.

208. Did you make a general survey of the town, such as to enable you to form a confident opinion as to the sanitary condition of the town generally?—Of the infected districts I did. That occupied me a long day in company with the inspectors of nuisances. On the following morning I met the united committee of the town council and board of guardians, and stated to them what my views were, the evils that might be met immediately, and the best means to be taken. The committee did me the honour to think that the remarks which I addressed to them were of so much importance, that it would be desirable that they should have them upon their minutes; and I was favoured afterwards with two copies of those remarks by the town clerk, one of which, if you have not got a copy, shall be placed in the hands of the Commission.

209. Have you it there?—I have. (*The witness produced the same.*)

210. Do you put this in as evidence and would you confirm and authorize us to make use of such passages as might seem to bear on the subject of our inquiry?—Certainly.

Extracts from the above-mentioned remarks:—

"There cannot be a doubt from what I have seen that the drainage of your town is very defective, and that the constructive character of a great number of the dwellings, both old and new, is entirely contrary to every sanitary principle. These are evils, however, which can only be remedied by works of a permanent nature at a large cost, requiring time and a continuance of that determination and energy which the local authorities have so earnestly manifested since the outbreak of this fearful disease."

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"In my examination of the town I have found in the seats of cholera large accumulations of dung, litter, and ashes, mixed with vegetable and animal refuse. In all these decomposition is going on; some have pools of fluid and semi-fluid matter connected with them; and from others the liquid is oozing through walls and doors, and trickling away along the surface gutters of the narrow, ill ventilated court-yards and alleys, and even along the streets.

"I refer now more especially to Pandon Dean, the entire district between Sandhill, Butcher Bank, Wall Knoll, Causey Bank, and the Quayside, and also to the whole district between New Road, Sandgate, and New Quay, with all the alleys and chares in that part of the town. The population is, I should think, upwards of 5,000, and it appears to be altogether the worst district in Newcastle.

"This part of the town is paved almost entirely with shingle or boulders, and between the rounded stones there are wide interstices. In the surface gutters the combined action of liquid refuse and of occasional sweeping has opened the joints between the stones, so that even where the inclination of the surface is considerable, there is always stagnation.

"These gutters are everywhere close to the doors. They average about a foot in width of fluid, and there is nearly a foot more on each side always quite wet. The subsoil underneath is saturated, and there is a surface of from two to three feet in width, from whence a constant evaporation of moisture and deleterious gas is going on in places where a breath of fresh air can scarcely penetrate—where every dilapidated unwholesome

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room has at least one family as occupants—and where, from the general absence of any privy accommodation, all the excreta of the inhabitants is poured into these same surface gutters.

"It would not become me to give the committee a dissertation on deodorisation and disinfection, but I may state that moisture, in such quantity only as to produce saturation, greatly increases the injurious products of organic decomposition. Even fæcal matters when dry are practically innocuous, and it will probably be known to members of the committee that in oriental countries dried horse-dung is extensively used for the bedding of horses, and dried camel's dung for fuel. The safety with which so concentrated a substance as guano can be handled and applied is attributable to its being dry. The admixture of water with the large quantity of decomposing organic matter in all the infected parts of Newcastle promotes the generation and discharge of hydrogenous and other deleterious gases; a very small portion of such gases in the atmosphere which the inhabitants are compelled to breathe must at all times be highly injurious, and in the midst of an epidemic like the present would be proximatively destructive of life.

"It would be dangerous at present, by removing the liquid and solid refuse, to liberate these deleterious gases. New surfaces would be exposed to more active and offensive evaporation, and the disease would probably be aggravated by the measures intended for its mitigation.

"In pursuance of what I have already stated the only alternative is, that they should be absorbed, dried up, and buried in their present localities, in such a way as to render them incapable of injury during the continuance of the epidemic; and be removed away in a comparatively dry state after it shall have subsided.

"The greater part of the liquid refuse now semi-stagnant in the surface gutters cannot be detained and accumulated; every house contributes to it, and we can only therefore devise some means of facilitating its discharge."

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"There are several other matters of a minor nature, but still very important, on which I would advise you.

"There are some public privies and urinals belonging to the corporation. I have examined several of them, and think they are in a very objectionable and offensive condition. I would recommend a copious use of earth and lime to these, and a frequent examination and renewal of the treatment, if any stench should be found to exist. I was informed that the public privy under the lower bridge is used by about 1,000 men and boys every day, and I cannot wonder when so few houses in the neighbouring district have any accommodation. A man was attacked with cholera while in that privy, and died, as I was informed, in a few hours. I could perceive the stench from the place at the distance of many yards.

"I would also mention the public midden-stead in Sandgate, belonging to the corporation. A sign-board announces, 'All ashes and refuse to be put into the midden-stead on pain of prosecution by the corporation.'

"Under ordinary circumstances I am not disposed to question the advantages of such a receptacle, in such a destitute neighbourhood; but at the present time I think it calculated to be dangerous, especially as it is in close vicinity to dwelling houses, is frequented by many persons, and is stated to be only emptied once in 24 hours. At the time of my examination there was a large quantity of foul straw, which I was informed was the bedding of persons who had died of cholera, and also a quantity of other refuse; several persons came in while I was there. I would recommend either that this place should be shut up at present and carts be sent frequently to collect all refuse, or that it should be emptied at least several times per day.

"Another matter is, that there are several tripe boilers in the same infected district, and in other parts of the town. The contents of the intestines and paunches were settling into the open joints of the boulder pavement, and the skin and hooves from the feet of sheep were sweltering upon the ash-heaps.

"I think that if possible the committee should prevent such trades from being carried on in the town, at least during the continuance of the epidemic.

"In a house contiguous to one of these places I found two persons dying of cholera.

"I must refer lastly to the marine store dealers, of whom there is a considerable number spread over the district where the cholera is and has been most fatal. I examined several of their premises.

"At one of them, Rowell's, I had to climb over several tons of shank bones to get a sight of a larger quantity of general bones stored in a building.

"There were fragments of cartilage and ligament upon some, and I need not say a very unpleasant effluvium from the whole premises. The owner stated very frankly that they had not been there more than a month, evidently thinking that a short time. I cannot think these accumulations are protected by law, any more than other nuisances of mere accumulation of dead matter. There is no trade process carried on, and I suggest that the committee should not only require them to be immediately removed in every instance, but should adopt some stringent regulation to prevent any similar accumulations."

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"When this dreadful visitation shall have passed away, you would do well to pave with gas concrete the whole of the courts, alleys, and passages in the diseased districts, but

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I think you would do still better to remove the wretched human beings who may survive in the whole district between Sandhill and the east end of Sandgate, and then to bombard and destroy the whole of the buildings situated there.

"I am convinced that by such means only will you be able completely to dislodge the causes of the present awful mortality."

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211. What time did you leave Newcastle and how long did you stay there?—I think I left on the 2nd or 3rd of October, when the disease was very rapidly abating, and the deaths were not more than some twenty or thirty a day. I may say that during the whole of the time I was here, I was constantly engaged in visiting the infected districts, not only to search out the apparent causes of the disease, but also to superintend those measures of repression which the sanitary committee had at once adopted on my suggestion. I may also add that, shortly after my arrival, I prepared reports of the results of my inspection, and presented them to the General Board of Health, and it would be perhaps well that the Commission should be furnished with copies of those reports. The document which I hold in my and consists of reports of my inspection of the Cholera districts of Newcastle, and of the facts which I saw there.

212. Do you put that document in as evidence before us?—Yes.

213. On the same terms as the previous one?—Yes.

Extracts from the above Reports.

"I have not mentioned until now an occupation which I saw carried on in those parts of the Cholera districts of Newcastle having public sewers. I have already stated that the gully gratings are untrapped; and also that, from the absence of privies, they are the general receptacles for the garbage and excrements of the inhabitants. There is a large population of rats in the sewers of Newcastle, especially in the Cholera localities; and the side drains from the open gully gratings appear to be their favourite feeding places. To these gratings boys from ten to fifteen years of age resort, generally two together, and during the raging of the pestilence succeed in combining amusement and profit by rat-catching. On several occasions, in very offensive localities, I endeavoured to dissuade them from pursuing so dangerous a calling, but was only laughed at for my officiousness. A wire noose is formed, such as poachers use for snaring game, and this being attached to a long and stout string is let down the gulley, the other end of the string is either retained in hand, or weighted down with a stone or clod of earth; several of these snares being let down the same gully, the young sportsmen kneel down over the poisonous effluvium that is constantly pouring out from below, and wait for their prey. I ascertained that one boy will take from four to seven or eight rats per day in this manner, and sell them alive at 2*d.* or 3*d.* each, according to the size. They are bought by persons who re-sell them at about 6*d.* each, to be worried by dogs.

"I have not mentioned this matter merely as a curious fact, but as an indication of the state of such public drainage, as exists in Newcastle during the prevalence of Cholera, and in the infected districts; and also of the means by which much of the excrementitious matter and other garbage is at present ultimately disposed of. The thought of such vermin existing in large numbers, in the midst of a densely inhabited district, is painfully disgusting, but not equally so, nor equally dangerous, as the existence in the same places of the masses of ordure and filth, which no other agency than that of the rats appears to move. It seems a strange conclusion to arrive at, but I am strongly of opinion that under the present sanitary arrangements in the Cholera and fever districts of Newcastle, the further destruction of these vermin ought to be strictly prohibited."

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"I now resume the details of my inspection:

"*Head of the Side*, near St. Nicholas church. Clogger's-yard is a long narrow passage, without any possibility of ventilation; it was in a very offensive condition, and at the time of my visit the public authorities were attempting to wash it out with the jet and hose pipe. Cicely Harkin has a lodging-house here, and close to the windows is a foul drain, and a most abominable privy; one person in the house had Cholera at the time, and another close by had diarrhœa. There had been eleven deaths in these few houses. About eight or ten yards distant there is a large heap of rubbish in a corner against the wall of an adjoining house; all these places are occupied as "tenements," that is, in separate rooms. I examined the room against which this accumulated filth was placed, and found not only the floor damp, but the foul moisture had struck up the wall nearly to the ceiling. A person had just died of Cholera in that room, and the poor woman living in it said the filth had been in the corner about twelve months.

"*Mill-entry* is the next adjoining yard; it is a long passage only about seven feet wide, and with buildings on both sides; at the upper end there is a large untrapped grating, the only receptacle for the ordure and filth of all the houses. There are no privies and the stench from this grate was quite overpowering. The doors of five tenements opened within ten feet of the grate. There were six cases of Cholera at my first visit, and two had already died.

Dark-entry in Back-row, no light, no ventilation, no drainage, no privies. Two children dead of Cholera, and several other cases progressing to a fatal termination."

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"*Pandon Dean.*—There are some privies here in a very horrible condition, and in most improper situations; a great part of the surface is entirely without pavement, it consists of

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ashes and other absorbent material, and is in a very filthy state. There are some boulder channels, but they retain filth in the open joints.

"The fluid excrement was oozing through some of the walls of the open cesspools, and running over the surface; the stench great and ventilation often impossible. There are many cases of cholera here and have been some deaths.

"*Stockbridge Brook or Dean* passes through the most unhealthy locality in Newcastle, and is an open sewer through part of Pandon. The houses are built to the full height on both sides of it, in some places the windows about four to five feet apart look into it; in other places wooden privies are projected directly over it, and then again buildings cover it. With pestilence raging around, it is with strange feelings that, after threading through a narrow alley from the street, one looks up and down the chasm occupied by this stream. Some fifty yards to the right hand the black fluid emerges from under the buildings, steaming and bubbling, and flowing by our feet is engulphed at some distance on the left. Overhead in this narrow space, the only windows of some of the tenements are partly opened; and from a short pole thrust out hang a few linens drying, probably the recent covering of some poor human beings just hurried to the grave. It is unnecessary, however, for the imagination to fill up the horrible picture; truly the shadow of death rests upon it. The same stream passes through a court-yard called Blythe's-nook, where seven people have already died of cholera; it is true that the habits and characters of the inmates of the houses are of the worst kind, but they have no privies, and the open drain of this Dean is the common receptacle for every thing, in a part of the yard where the fronts of the houses are not more than eight feet distant from each other. There is no possibility of ventilation either in the rooms or the court-yard, and probably no part of Newcastle is more crowded."

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"*Burn-bank* is a flagged passage where every morning there are large accumulationsof ordure from the houses, because the people have no privies. There had been about four deaths at my first visit.

"Nearly the first death in Newcastle during the present visitation was that of Mr. T. Beveredge in the neighbourhood. He was an elderly man strong and healthy, a small grocer in good circumstances; his niece resided with him and she also died, as also did another person in the yard behind. Some surprise has been expressed because no local cause had been discovered; I found, however, that the privy is within six feet of the window of a back living room, with a sleeping room over it, and although it was only a large wooden box, yet it was quite full at the time of my examination, and if any wind could get to it the effluvium must be blown into the house.

"*Cox Chare* is one of the very numerous alleys in this part of the town, full of inhabitants. Some men were engaged here at the time of my visit emptying a large quantity of solid filth out of the cellars. This included rotting eels, fish-bones, straw, oyster-shells, and other garbage, amounting to some cart-loads. On inquiry of the people who live over it, I was informed that it had not been emptied out for years.

"*Sandgate* is a long street, with narrow alleys on both sides, and a population of some thousands of persons, living in old dilapidated houses, the greater part of which are framed of wood with overhanging upper stories, and a separate family for almost every room; the common entrances and stairs are frequently filthy, dark, and dangerous. I do not think there is one privy to every hundred tenements, but when such an appurtenance exists, it is generally either under the stairs, or there are living and sleeping rooms on each side with only the walls as a separation, and bed rooms and living rooms over it. The effluvium has often no escape but into the rooms; broken windows, industriously filled with rags, and low door-ways, through which one must stoop to pass, are the only openings to hundreds of dark and dismal single rooms where the poor occupants sleep and eat and drink and die, where the sun never shines, and the fresh air never enters; where, in many instances, a few pence would purchase all that is usually included in the term 'goods.'

"Many of these alleys, locally called 'chares,' are paved with boulders, and the open joints in the rounded stones present a constant surface of foul evaporative moisture; chamber utensils, slops, and filth of all descriptions are emptied into these gutters, and the whole condition of the district physically, socially, and morally, is indescribable."

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"(Corporation middenstead already described.)

"*White Board Entry* is a very narrow abominable place, full of tenements and filth, without any possibility of ventilation; five persons have already died, and I saw two women approaching collapse; one of them had only the wall between her head and the midden.

"In certain places where the old deans or watercourses (which are now only imperfect sewers) cross the streets, there are often untrapped gratings. These are very much complained of by those who live in the adjoining houses, not only because of the ordinary sewer effluvium, but also because persons all round the neighbourhood, having no privies, bring their utensils and empty them in these gullies, until all the bars and the surface around are covered with human ordure. The sight is sufficiently sickening and disgusting, but it is indicative of much more, when we consider that such vessels are of necessity in the only room occupied night and day by parents and children, the latter frequently grown up; that the rooms cannot be ventilated; and that such vessels have to be kept in the same

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rooms until they can be conveniently emptied. On the quay the gratings are more numerous and are said to be all covered with ordure in the morning from the emptying of utensils during the night.

"In *Pepper Corn Chare* and other chares coming down to the quay, the rooms on the upper floors of the buildings nearly meet. The cholera has been very malignant in all this quarter.

"Corporation privy and urinals have been already described.

"*District between Blenheim Street, Marlborough Street, the Cattle Market, and Westgate Hill.*—The principal streets have been well set out, of good width, and are generally paved with boulders and the footpaths flagged.

"The buildings are not lofty, and there are no manufactories in the immediate vicinity. In the principal streets most of the houses are set back and have small gardens or areas in front. Walking along these thoroughfares, any stranger capable of judging would pronounce the locality as one of the most healthy in Newcastle, and all natural and apparent circumstances from such an examination would concur in the conclusion. Typhus fever or cholera, or other epidemic disease ought never to have existed in the neighbourhood; and never would have done but for the criminal cupidity of builders, and the absence or non-enforcement of proper regulations.

"The back ground between the east side of Blenheim street, throughout its whole length, and the next important thoroughfare parallel to it, is no more than sufficient for the appurtenances of the front houses and adequate ventilation.

"From a desire to obtain the largest possible rental from the smallest possible surface the whole of this back land has been filled with inferior houses, built up into narrow pestilential lanes, and attempted to be dignified by the names of Temple-street, Peel-street, Westmoreland-place, &c. After witnessing the awful destruction of human life in this locality within the last month, it is impossible to repress the strong feeling of indignation which arises from a conviction that it was all entirely preventible.

"Hundreds of these newly-built tenements ought to be immediately closed by the local authorities as unfit for human habitation.

"They are generally unpaved, undrained, and without even surface gutters. The slops from the houses stagnate and sink into the soil. In some instances, behind the front rows there are small sunk courts with foul privies close to the doors; but in a very large proportion the privies are under the same roof as the houses, and very often with the same external door. These horrible places are on the lowest floor, frequently below the street, with bed-rooms on both sides and above, and the greater part of the deadly emanations rising direct up the well of the stairs and filling every room. In a house only two stories above the ground there will be six "tenements" or rooms and six families, each paying sufficient rent for a separate cottage. In the basement will be two families and the privy, with a large open vault the receptacle of everything offensive and injurious; on the ground floor two other families, and on the chamber floor two more families.

"This is especially the case in Peel-street, and few, if any, of the houses have been without fatal cases of cholera. Behind one side of the street the windows are within about two feet of the backs of other houses, and the builder has not left himself sufficient ground upon which proper privies could possibly stand.

"This life-destroying property may be shortly but truly described as unpaved, undrained, unventilated, over-crowded, in which the poor occupants are compelled night and day to drink water unfit for washing their floors, and to breathe the products of the decomposition of their own excrements."

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"Haltwhistle.—Haltwhistle is situated nearly on the summit ridge between Newcastle and Carlisle, and the town contains the union workhouse and about 2,000 inhabitants."

"It will be known to your Honourable Board that the union of this name, and of which the town of Haltwhistle is the centre, has, along with the neighbouring unions of Bellingham and Glendale, a lower average rate of mortality than any other locality in England and Wales. I am not aware that any calculations have been made upon the census of 1851; but upon that of 1841 the rate of mortality in a population of 27,628 persons was only 14·65 to a thousand.

"The mortality of Carlisle, only 22 miles west and containing 36,000 persons, was at the same time nearly 26 to a thousand. At Hexham, only fifteen miles east, with a population of 5,000, the mortality was 25½ to a thousand; and at Newcastle-on-Tyne the mortality was at the same time within a fraction of 30 to a thousand.

"The latitude of all these districts is the same, and Haltwhistle is a mining as well as an agricultural district. I state only the result of personal experience and examination when I say, that the lower rate of mortality in Haltwhistle is mainly attributable to an atmosphere unpolluted with the emanations from decomposition of organic matter.

"In consequence of a communication addressed to you stating that cholera had appeared at Haltwhistle, Dr. Gavin and I proceeded there from Newcastle on the 26th September, to examine the place and advise with the local authorities.

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"This escape of Haltwhistle appears as remarkable as does the fearful mortality in the neighbouring towns. The pestilence certainly visited the place, but did not find the inhabitants depressed in vital power, and thus predisposed to the disease. The secondary causes, of air and water polluted by cesspools, by foul drains and by accumulations of

refuse, had no existence in Haltwhistle. A few cases of the premonitory stage of the disease only afforded proof that it had been there, but had not been able to obtain a footing."

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214. Have you any notes with reference to the condition of Blackett-street or Northumberland-street?—I think not, those are in one of the better parts of the town, inhabited by more opulent people, I think; and the disease was not so intense there, and did not require so much of my attention.

215. I have in my hand the Registrar-General's statement, showing the rates of mortality in 1839, 1846 and 1847 to have been above 30, 36 and 32 per mill respectively, and in 1853, 43·3 per mill. Can you, from your personal inspections of the town of Newcastle, and from your general experience in matters of this kind, state to the commission, what local causes you think may have led in a greater or less degree to that high rate of mortality?—I think I ought to say first to the commission that I consider from my experience these rates of mortality to be excessively high.

216. Did you in the year 1851 prepare a pamphlet, entitled "Summary of experience on disease, and comparative rates of mortality"?—I did, if the commission wish to have a copy of it, they shall be furnished with it.

217. Is that your pamphlet? *(handing a pamphlet to the witness)*—It is.

218. Do you now confirm the statements there made as to the rates of mortality in the districts there mentioned?—So far as I can, that is to say, that the statistics are taken from the returns to the registrar general.

219. To the best of your knowledge and belief those statements as to the comparative rates of mortality in other places are correct and true?—Certainly, and all the other statements in this pamphlet also.

220. You put that in on the same terms as before, allowing us to make such use of it as may seem requsite for the purposes of the commission?—Yes.

Extracts from the above Pamphlet.

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"Deductions and Conclusions.—I have now given as condensed a view as possible of the great mass of evidence accumulated on the first or medical part of the subject.

"Before proceeding to the statistical part of the question, I wish to draw the attention of your Honourable Board to several important considerations arising from what has been already said.

"I. Preventible diseases are the consequences of the decomposition of unremoved animal or vegetable matter, or both, vitiating the atmosphere which the inhabitants of the place are compelled to breathe. The same maladies are produced by the decomposition of unremoved animal or vegetable matter in the smallest villages as in the largest cities, and the malignancy and fatality has no rateable connection with the size of the place, but only with the intensity of the malaria. This is abundantly shown by all that has been said of the destructive ravages of fever, &c. in small towns, *and even villages*, in various parts of the country. It follows, that *diseases of the class termed preventible are not inherent in, essential, or even peculiar to, places of population.*

"If it be stated that there is in towns much sickness and mortality incidental to trade avocations and accidents, altogether unconnected with any arrangements for water supply, drainage, or other public works, I reply, that though the above remarks were intended only to apply to such evils as are within reach of the powers of the Public Health Act, yet it would be easy to show that nearly all the diseases arising from trade avocations, as well as by far the larger proportion of what are commonly called accidents, might be prevented.

"A further objection is, that the ventilation of towns can never be equal to that of country places. Although the ventilation of houses or other buildings forms a necessary part of a good sanitary system, it is as much needed by every individual house in the country as in a town. External or street ventilation can only, however, become necessary as a consequence of defective public arrangements, and the necessity for it can only continue by supposing a continuation of a bad system. Such ventilation is precisely analogous to the flushing of old sewers in the metropolis. In both cases foul and injurious matters are supposed to be produced, to stagnate, and to accumulate; and then, in each case, a fluent current is required for the removal of the obnoxious matter. Purify the air by the immediate removal, before decomposition, of all organic and other refuse capable of producing malaria, and town ventilation will be little required, irrespective of the forms of streets, courts, &c., and the density of buildings. I make no reference here to internal ventilation of buildings, because, whether in town or country, the rooms in which a like number of persons pass an equal number of hours would equally require, for healthy respiration, that the atmosphere should be frequently renewed.

"In the comparison of town and country, the greater density of population in the former affords facilities for more perfect drainage, better supplies of water, and more prompt medical assistance than can be had in any mere country village; while almost every cause of disease that can be conceived to exist in towns, but not in country places, is of a removable nature.

"On a review of my experience *I can find no valid reason why towns should be more unhealthy than the most salubrious spot in the kingdom.*

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Extracts from Summary of Experience on Disease, &c.

"II.—Of all preventible diseases, TYPHUS, in its various forms, is the greatest scourge with which these islands are afflicted. The most permanent, the most fatal, the most costly, and in the opinion of the medical witnesses who have come before me, one of the most easily subjugated by improved sanitary arrangements.

"The incursion of a pestilence like cholera seems for the moment to excite alarm, and arouses men from their lethargy; but generally they sink again into inactivity as soon as the immediate danger is passed. With fevers and other English epidemics carrying off constantly greater annual numbers than even an attack of the cholera, the great masses of our town populations seem to say, 'Let us eat and drink, for to-morrow we die.'

"It has been estimated that 50,000 persons fall victims annually to typhus fever in Great Britain. My investigations have been confined to England and Wales, and I have no hesitation in saying that the estimate is very much too low; that *one half of all the existing disease and mortality is in excess, and preventible.* The statistics herein-after given fully prove the fact.

"III.—My inquiries during the two years included in this summary extended to all parts of the kingdom, from Kent and Wiltshire, in the south, to the north of Lancashire and Yorkshire; and from Wales to the county of Norfolk. The result is that in every direction I found the active operations of death; viz., dead organic matter busily assimilating living organic matter to itself. The process is declared to be to a great extent controllable, and within certain limits preventible; and yet, in almost every instance quoted, it has been going on for years, silent, unchecked, and comparatively uncared for, except in the bitter reminiscences and present suffering of the bereaved and the afflicted."

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VITAL STATISTICS.—"It is now my duty to compare the rates of mortality in the towns and places visited, with their condition at other periods, and also with other towns and districts, so that from a variety of aspects the rateable excess may be more clearly seen, and an approach made, as nearly as possible, to *that inevitable mortality of the country* which should form the basis of future legislation, and be the continual and ultimate object of all executive authority.

"I should have been unable to do this now had I not adopted at the first a mode of extracting and tabulating registration returns first used by Mr. Chadwick, many years before the passing of the Public Health Act. I have adhered to that mode invariably, because experience has proved it to be the best; and I am thus able not only to place under similar headings all my data collected during two years, but also to avail myself of a large amount of information, the result of his labours.

"Many of the statistical facts which I shall have to bring before your Honourable Board are of the most startling character; BUT THEY ALL POINT TO LOCALIZED FILTH, ACCOMPANIED WITH MOISTURE, AS THE GREAT CAUSES OF DISEASE AND DEATH. Were it possible, I would avoid tables, but when a great number of places and circumstances have to be compared and contrasted, this mode of illustration is absolutely necessary.

"I must further premise, that from some of the 40 places visited in 1849 and 1850 I could not obtain returns, from some few the data was incorrect, and several were incomplete as to the whole of the columns.

"In these tables I have omitted everything upon which I could not confidently rely, and the whole of the information is drawn from official sources.

"Table No. 1. relates to 32 of the places visited, and shows the population of each, the rate of mortality per thousand, the prevalent diseases, the general avocations of the inhabitants, and the physical contour and geological character of the district.

GENERAL TABLE No. 1.

Year.	Parish or Place.	Physical Contour.	Geological Strata.	Population.	Staple Avocations.	Rate of Mortality per 1,000.	Prevalent Diseases.
1841	Market Harborough	Undulating	Gravel, loam, & clay	4,133	Agriculture	20	Typhus and low fever.
	Great Bowden						
	Little Bowden						
1841	Ashby-de-la-Zouch.	Ditto	Sandstone	5,208	Agriculture, coal mining.	19·77	Low fever and malignant typhus.
1841	East Retford	Flat	Alluvium	2,682	Agriculture	22	Low fever and rheumatism.
1841	West Retford	Flat	Drift gravel	618	Ditto	12·94	Low fever and chest affections.
1841	Clarborough	Undulating	Clay	2,229	Ditto	17·94	Endemic fever and epidemic typhus.
1841	Orsdall	Flat	Drift gravel	955	Ditto	10·47	Low fever.
1841	Swaffham	Undulating	Chalk	3,358	Ditto	22·35	Low fever, chest diseases, and cancer.
1848	Loughborough	Level	Red marl & gravel	11,000	Hosiery & weaving	28	Endemic typhoid and malignan typhus.
1848	Knighton	Hilly	Slaty stone	1,417	Agriculture	12	Pulmonary, low fever, & typhus.
1848	Epsom	Undulating	Gravel and chalk	4,200	Ditto	19·52	Continued fever and typhus.
1848	Holbeach	Level	Sea warp	5,000	Ditto	25	Ague and typhus.
1848	Newcastle-under-Lyme.	Undulating	Sandstone & marl	10,432	Hats, shoes, and silk manufacture.	26	Typhus & all preventible diseases.

Year.	Parish or Place.	Physical Contour.	Geological Strata.	Population.	Staple Avocations.	Rate of Mortality per 1,000.	Prevalent Diseases.
1848	Burslem - -	Undulating	Coal, clay, and marl	17,503	Pottery - -	27·54	Typhus and all preventible diseases.
1848	Ely - -	Undulating and level.	Sand, peat, and clay	7,491	Agriculture - -	32·57	Low fever, ague, typhus, and chest diseases.
1848	Nantwich - -	Flat - -	Sandstone, marl, &c.	6,323	Shoes and gloves -	27·50	Typhus and all preventible diseases.
1848	Litton - -	Mountainous	Carboniferous limestone.	864	Agriculture & frame-work knitting.	28·9	Low and scarlet fevers.
1848	Great Yarmouth	Level -	Sea sand - -	26,434	Fisheries, silks, &c.	22·40	Low and scarlet fevers and chest diseases.
1848	Gaywood - -	Level -	Clay and silt -	1,176	Agriculture - -	11·05	Typhus fever.
1848	Diss - -	Undulating	Clay, sand, & chalk	3,461	Ditto - -	18·2	Low typhoid fever.
1849	Reading - -	Undulating	Clay, sand, & chalk	22,716	Weaving, iron-work, and agriculture.	30	Typhus, small-pox, and all preventible diseases.
1848	Gainsborough -	Flat - -	Warp and gravel -	8,096	Maritime - -	34·09	Typhus & all preventible diseases.
1848	Alfreton - -	Hilly - -	Coal measures -	8,842	Collieries, iron-works, frame-work knitting.	20·35	Typhus and low fevers, scarlatina, measels, &c.
1849	March* - -	Level -	Silt, peat, & gravel	6,300	Agriculture - -	33·01	Ague, cholera, consumption, and typhus fever.
1849	Selby* - -	Level -	Loam, clay, & gravel	6,100	Sail-cloth, &c. maritime.	39·34	Cholera, typhus, and all preventible diseases.
1848	Walsoken -)	Level -	Sea warp - -	3,150	Maritime & agricultural.	23·80	Endemic typhoid fever, ague.
1849	Wisbech* -)	Level -	Sea warp - -	9,500	Maritime & agricultural.	37·68	Cholera, typhus, ague, and consumption.
1849	Norwich* - -	Undulating	Gravel and chalk -	64,548	Woollens, silks, and cottons.	26·03	Typhus, low fever, scarlatina, erysipelas, &c.
1849	Worksop - -	Undulating	Gravel and magnesian limestone.	6,767	Agriculture & malting.	27·2	Typhus and low-continued fever.
1849	Rotherham -)	Undulating	Lower new red sandstone.	6,446	Hardware and collieries.	22·	Endemic low fever, typhus, scarlatina.
1849	Kimberworth* - (	Undulating	Coal measures -	5,932	Ditto & agriculture	25·9	Typhus, low fever, scarlatina, measles, &c.
			Total -	262,881			

* The cholera deaths are included in the returns for these towns, but not in the returns from any of the others. The same remark will be applicable to the other tables in which the names of these towns occur.

"I have to remark upon this table, *first*, the confirmation of what has been already stated,—that typhus, in all its various forms of low fever, typhoid fever and malignant typhus, is the one pre-eminent destroyer of the English people. In the columns of prevalent diseases it exists in every place, large and small, whatever may be the occupation of the inhabitants, and without reference to the geographical position, or contour, or the nature of the soil. The conclusion is inevitable, THAT TYPHUS FEVER IS ESSENTIALLY INDEPENDENT OF ALL THE CIRCUMSTANCES COMPRISED IN THIS TABLE.

"I would observe, *secondly*, that there is really no connection between density of population and a high rate of mortality. This is apparent from the whole table, showing that in the three smallest places the rates of mortality are to each other as 5, 6, and 14. In eight places of from 5,000 to 7,000 each, the deaths vary from under 20 to very nearly 40 to 1,000 of the population. There are five towns with a mortality exceeding 30 to 1,000, but not one of them contains 10,000 inhabitants. In six places the rates of mortality are nearly equal, but the proportionate population of each is: Litton 1, Nantwich 7, Worksop 8, Loughborough 12, Burslem 20, Norwich 74. I might adduce other proof of the fact, but it is unnecessary.

"*Thirdly*, it has been frequently stated, in extenuation of the excessive mortality of manufacturing districts, that trade occupations exercise considerable influence on health. The table proves that some other cause must be found. If the column of staple avocations be divided into three classes, manufacturing, maritime, and agricultural, it will be found that the mortality in manufacturing districts ranges from 20 to 30 in 1,000, in the maritime, from 22 to 39, and the purely agricultural, from about 11 to 33 in 1,000. In the five towns having a mortality above 30 to 1,000 there are, in general terms, no manufactures carried on. I conclude that the staple avocations of the inhabitants are incapable of producing any appreciable effect upon the general rate of mortality in any town. It follows collaterally, that no appreciable effect will be produced on the amount of disease.

"*Fourthly*, it appears generally, that where there is much moisture, such as in level districts, with a damp tenacious soil, the rates of mortality are high. In other words, WHERE NEITHER THE WATER NOR THE FILTH IS REMOVED BY DRAINAGE, THE GREATEST DESTRUCTION TAKES PLACE."

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"DETERIORATION IN THE SANITARY CONDITION OF MANY TOWNS.—Before proceeding to compare the places visited with others differently conditioned, I may point out the rapid deterioration that has taken place in those from whence I have been able to obtain returns extending over a series of years. I attribute this, without any hesitation, to the cause

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already mentioned; namely, unremoved decomposing organic matter; in other words, absence of drainage.

"The cesspool and open privy system, the surface gutters, and stagnant pools and ditches, perform a cumulative work,—that of saturating the whole subsoil of towns. Perfect saturation, when the whole mass in any case would become a dungheap, is but a question of time. In every place I have visited the *earth* is tainted, and the evaporations from its surface poison the *air* which the inhabitants are compelled to breathe; in most towns the accumulated filth already percolates to the wells, and pollutes the *water* which the people are compelled to drink."

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"Conclusions.—I have to lay before your Honourable Board the following conclusions on this part of my summary:

"I. That typhus fever in its varied forms, of low, continued, typhoid, and malignant typhus, is the one great pre-eminent scourge of this country.

"II. That typhus is essentially independent of, and unconnected with, geographical position, climate, physical contour, geological strata, or other *uncontrollable* circumstances.

"III. That there is no intrinsic connection between density of population and a high rate of mortality.

"IV. That the staple avocations of the people are incapable of producing any appreciable effect on the general rate of mortality in any town.

"V. That where neither surplus water nor organic filth is removed by drainage, there the greatest destruction takes place without reference to any other considerations, and the rates of mortality are directly proportionate to the badness of the drainage.

"VI. That the sanitary condition of towns has rapidly deteriorated; and this deterioration is the consequence of a cumulative process of saturation going on in the sites of such towns.

"VII. Statistical analysis proves, that the inevitable mortality of the inhabitants of this country is not probably greater than the proportion of 10 to 1,000 of the population per annum.

"VIII. The analysis of vital statistics proves that the existing annual mortality in differently conditioned parts of the same town varies from 17 to 45 in 1,000.

"IX. That the deduction of the deaths arising from preventible diseases from the whole deaths leaves an inevitable *mortality* of only 11 to 1,000; and that this is nearly a constant quantity in healthy and unhealthy districts.

"X. The more specific the analysis, the greater is the amount of excessive mortality disclosed.

"XI. That in the towns visited, taking all circumstances into consideration, one half the attainable period of human life is lost to all who are born.

"XI. That the towns visited fairly represent the present sanitary condition of towns in England and Wales."

"*Pecuniary Loss from Preventible Sickness and Mortality.* The primary result of bad sanitary arrangements being excessive disease and mortality, these in their turn become the causes of enormous pecuniary loss to every community. The poor again are the chief sufferers; but the more wealthy and influential inhabitants do not escape with the same degree of immunity from the financial consequences of sanitary neglect, as from preventible disease."

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"Conclusions.—I. That though the poor are the chief sufferers, yet no class of society escapes the pecuniary consequences of preventible disease.

"II. That the poor rates are largely increased by the direct payments on account of excessive sickness and mortality.

"III. That preventible sickness and mortality are amongst the most fruitful sources of permanent and hereditary pauperism.

"IV. That a considerable proportion of the funds of medical, and many other charities, are expended on cases of preventible sickness and its consequences.

"V. That the use of narcotics and habits of drunkenness are in numerous instances developed and increased by defective sanitary arrangements.

"VI. That a large portion of the premiums paid for life assurance is due to the high rates of mortality caused by preventible disease.

"VII. That a great number of sick and friendly societies have been broken up by preventible sickness and mortality, and that the destruction of such societies generally is threatened by the same cause.

"VIII. That in twenty-nine of the places visited, the pecuniary loss upon one year's excessive sickness, funerals, and lost labour, is about equal to the first cost of complete works for water supply and drainage in the same places; the basis of comparison being the existing rates of mortality in sixty-one unimproved whole registration districts, containing above a million inhabitants."

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221. Adverting to the conclusions in this pamphlet expressed, do you consider these in your opinion, excessively high rates of mortality in Newcastle, to be owing more or less to the want of sewerage, the want of drainage, the insufficiency of the water supply and so on?—Yes; as to the water supply, I should say so, in general terms, but subject to the remarks

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which I may have to make to the Commission afterwards. I would not at present be understood as condemning altogether the water supply. I wish to say, in reference to Haltwhistle, Glendale and Bellingham, which are mentioned in that pamphlet, that the rates of mortality there are very slightly over 14·6 in 1,000 per annum; and that I had, while here, to visit Haltwhistle officially on the part of the General Board of Health, and found that the arrangements for medical attendance throughout the whole of those districts were so inadequate, that every one of the guardians had to be supplied with cholera medicines, in order that he might have a district in which to administer those medicines himself. That is one important point in respect of which towns ought not to have so excessive a mortality over the country as they have. In towns every arrangement for the preservation of life and health may be so systematised that not only may all dead organic matter be immediately removed, but in case of illness, assistance can be immediately obtained. Notwithstanding those facts, however, there are whole registration districts in the vicinity of Newcastle, with only about one-third the mortality of Newcastle during this last year.

222. Do I rightly understand you to say that, in your opinion, town districts ought perhaps to be subject to a less mortality than country districts?—There are reasons why it should be so; though it will be a long time before we shall arrive at any such result. I know of no reason, however, why the health of any town should be more unfavourable than that of a country district.

223. *Cæteris paribus* you think that the facilities which a town affords in respect of medical assistance, obtaining drugs and so on, ought in theory to tend to reduce the town mortality below the country mortality; but that in practice it is very different?—It is so, so far as the medical attendance is concerned. So far also as the public arrangements for drainage, water supply, and so on are concerned, a town will always have the advantage of the country. The fact is, that the town atmosphere is poisoned, the country atmosphere is not.

224. That comes very near an answer to the question I originally asked you, viz. what local causes do you believe to have been at work in swelling the mortality of this town in the three years 1839, 1846 and 1847 to above 30, 36 and 32 per mill, and in the last year to above 43 per mill?—I cannot speak from personal knowledge of any year before 1853.

225. Can you form no opinion from what you saw in 1853?—I should say certainly, judging from experience and from what I saw in 1853, that the mortality has been aggravated and increased by the presence of unremoved dead organic matter.

226. I have here also a statement by the Registrar General as to the number of deaths and the rate of mortality arising from zymotic diseases only, during a certain number of years. Is it your opinion, from your experience in these matters, that that class of diseases is specially liable to be mitigated or reduced in extent by sanitary precautions?—Most certainly, I have found them varying in different districts in the proportion of nearly 20 to 1, and that proportion has corresponded with the relative presence or absence of such decomposing organic matter. In a healthy district I have found the proportion of deaths from zymotic diseases to be from 1 in 400 up to 500 per annum. In very unhealthy localities from 1 in 50 up to 1 in 25.

227. Then would you consider these rates of mortality from zymotic disease to be high?—Exceedingly so.

228. And do you think that any portion of that mortality might have been prevented by adequate sanitary measures beforehand?—I cannot have a doubt of it.

229. Do you notice in the position or the climate, or in the natural circumstances attending the physical situation of Newcastle, anything that ought to give rise to such an excessive mortality?—Certainly not, I think Newcastle ought to be a very healthy place, and I think the proof of it is found in the fact of its being in the same latitude and in the same neighbourhood as three extensive unions, having about the lowest rates of mortality in England.

230. What trades and occupations are followed principally in these remarkably healthy districts?—Mining and agriculture.

231. Is any considerable proportion of the population a mining population?—I am unable to say what proportion, but I know, from having passed through those districts, that mining operations are carried on there; but I am not aware that mining operations necessarily involve a large proportion of mortality, and if they did, this would not appear under the head of deaths from zymotic diseases, but rather under the head of deaths from other than natural causes.

232. Did you at all notice the geology of the district while you were here?—I did to some extent: so far as my more pressing duties would allow me. Newcastle is situated on the carboniferous system, having a soil partly of clay and partly of a sandy loam.

233. Would you consider that a soil which specially required drainage to make it healthy?—Undoubtedly, the clay soil because of its retentiveness of moisture, and the sandy soil, because the percolation there going on would be only a matter of time until the superficial part had become saturated, when such percolation must cease and the surface become little more than a dunghill.

234. Did you notice the peculiar form of house construction in some parts of this town, in respects of courts and banks, and chares as they are termed?—I did, you will find it mentioned in the reports of inspection to which I have referred.

235. What is your impression as to the effect which that form of house construction has

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on the public health in respect of ventilation, &c?—I think that one whole district in Newcastle is quite unfit for human habitation: and if you will allow me I will just read a remark or two which I have made upon it.

226. What district is that?—It is a district which has been known as the Sandgate district. I will give you my opinion in the words I addressed to the sanitary committee.

237. What was the opinion which you expressed there?—As follows—"When this dreadful visitation shall have passed away you would do well to pave the whole of the courts, alleys and passages in the diseased districts; but I think you would do still better to remove the wretched human beings who may survive in the whole district between Sandhill and the east end of Sandgate, and then to bombard and destroy the whole of the buildings situated there. I am convinced that by such means only will you be able completely to dislodge the causes of the present awful mortality."

238. Do you confirm that opinion now?—I do.

239. Do you believe that any improvement in respect of opening up the ends of courts, and making sewers and drains, knocking out fastened-up windows and so on, can ever render a block of houses so radically misconstructed fit for human habitation in a sanitary point of view?—I am sure that they cannot be rendered suitable habitations for human beings. I would not say, of course, that if one or two houses had all the buildings around them cleared away, it would not be possible then to make them so that human beings could live in them; but speaking in terms as exact as are generally used, I should say that the whole of the buildings of that district ought to be removed.

240. In how many towns of the kingdom do you think you could find a block or group of houses of the same size, equally misconditioned in a sanitary point of view?—I think I have visited officially some hundred towns; and I could find no place with respect to which I could institute a comparison; except, perhaps, Great Yarmouth, where there is a part of the town having similar narrow passages.

241. Is Great Yarmouth situated, as Newcastle is, on a steepish slope, or succession of ups and downs? Or is it on a dead level?—Comparatively on a dead level, the town of Great Yarmouth is erected on a sand bank which has been thrown up entirely by the sea, but there are so many radical points of difference in favour of the district to which I allude, in Great Yarmouth, that really the cases are not parallel; because the people who reside in those passages and small court-yards have their cottages to themselves almost entirely, and they are all provided with privy accommodation, and their health is very much better. Therefore on the whole I know of no parallel case to this district of Newcastle, nothing so bad.

242. You are sure of that fact, that all things considered, you know of no group of houses in any other town in the kingdom which is in so totally unfit a state for human habitation as Sandgate in Newcastle?—I know of none, considering its size.

243. Could you find some small spots in other towns equally bad?—I could; very small spots, and with a corresponding destruction of human life attaching to them.

244. What would be the comparative size of those equally bad districts in other towns; would they be half as big or a quarter as big as Sandgate?—No, nor one-tenth part. I can refer to a small place in the town of Nantwich, in Cheshire, where there may be 200 or 300 persons, and in one house I found nine persons dying of cholera, in 1849, in that district.

245. But, the size of the districts considered, you know nothing approaching to the case of Sandgate?—Nothing. In Newcastle-under-Lyme, in a small district, having a population, it may be, of 400 or 500, and the population some of them Irish people, as they are here, there was a very great mortality in 1849, while I was there. But I know of nothing, for its extent, so awfully defective as this Sandgate district anywhere.

246. Taking the cities of Glasgow and Edinburgh, which are generally supposed to be in a bad sanitary state, could you find anything parallel or approaching to a parallel to districts in this town?—I have never made a very close examination of the whole of either of those towns; but I have seen in Edinburgh, small parts in the Wynds and Closes about the Canongate, and also small parts of Glasgow, quite as bad as Newcastle. I would not speak so positively as to the towns in Scotland, because I have not visited them with the same official authority.

247. Then you do not say that there are no such districts in these towns, but that you do not know of any?—I was speaking before of England, where the Public Health Act was in operation. It does not apply to Scotland, and I should wish that the remarks which I made before should be considered as being confined to England and Wales.

248. Are you acquainted with Whitehaven in Cumberland?—I am not.

249. Or with Liverpool?—I am acquainted with Liverpool. I made an examination of every house and place where cholera had been present only about three weeks ago; there having been about 150 deaths in Liverpool within the last six weeks. There is not anything in Liverpool nearly so bad.

250. Had you occasion on your recent visit to this town to pay attention to the state of the water supply, and the quality of the water?—I was instructed to examine the waterworks and to inquire as to the supply. I went up to the works and saw that the storeage reservoirs were very nearly empty.

251. At what date was this?—The 29th of September.

252. You found the reservoir very low; but did you make any examination, and have you any opinion, as regards the quality of the water delivered for use in Newcastle at the

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time you were there?—I will state first generally, that I examined the works; I examined also the water being delivered within the town. I requested the attendance of the secretary of the company and the resident engineer, and took from them some evidence which I will place in the hands of the Commission. I also took samples of the water myself and sent them to town and had them analysed.

253. When?—On the same day, the 29th of September.

254. From what sources did you take that water—from reservoir, or from stand-pipe, or where?—I took two gallons of water from the open conduit leading from the Pont; no water, or comparatively none was then flowing from any of the reservoirs; they were nearly empty.

255. Flowing from the Pont through a certain cut towards the reservoir, is that so?—Through a certain cut towards the town.

266. Does not it go into the reservoir before it reaches the town?—It was only passing then into a very small reservoir below the storage reservoirs sufficient to keep the end of the pipe covered.

257. (*Mr. Bateman.*)—It goes into the reservoir first?—Yes.

258. (*Chairman.*)—You took two gallons of water from a cut through which the Pont water was running into the reservoir; what did you do with it?—I may say that those samples of water were taken as I usually take them; the bottles were new,—the corks were new,—the bottles were previously rinsed out with water of the same kind that was about to fill them, and I closed them and sealed them myself and dispatched them. I took a similar bottle also of water from a service-tap at the Central Hotel; I took another similar bottle of water from the River Tyne at the point where the water had been raised for the supply of the town up to the 15th of September.

259. Who told you that that was the spot; how did you know that it was the spot?—It was pointed out to me.

260. By whom?—By one of the inspectors of nuisances.

261. Whom?—I believe, Mr. Charlton; but there is no doubt about it.

262. Were the officers of the water company present?—They were not present. The person in charge of the reservoirs was present when I took the bottles of water from the Pont.

263. But the rest of the water was taken by you without the presence of the water company?—It was.

264. What did you do with the water which you thus obtained?—I sent it to London.

265. At what period of the tide did you take this water from the Tyne?—A little below half-tide.

266. (*Mr. Bateman.*)—Half-ebb or half-flood?—Below half-ebb.

267. (*Chairman.*)—What did you do with the water?—I sent the whole of those samples to London, and I have here a copy of the analysis of them made by Mr. Holland, who is a medical man and a chemist.

268. This purports to be a copy?—Yes.

269. Have you the original?—I have not the original.

270. Did you receive the original?—No; I received that as being a copy. I know it to be a copy, because I know the hand of the copyist, and the manner in which those things are copied. I can take care that the Commissioners have the original if they wish. I do not think there is any importance to be attached to this analysis, except this simple fact, that I had another analysis of water furnished to me by the secretary of the company as having been made by Mr. Herapath, and I have seen a third analysis of the water, as given in the prospectus of the water company; and all the three vary considerably as to the component parts of the water.

"To William Lee, Esq., C.E., &c., &c., &c.

"*Report of an Examination of Three Specimens of Water from Newcastle.*

"These specimens were sent in two-gallon stone-ware bottles, securely corked, sealed, and numbered 1, 2, and 3.

"No. 1. Was not clear, was slightly tinged, contained fragments of broken straw, sand, fine earthy matter, which quickly subsided, and thousands of visible insects. It had no evident smell or taste.

"On evaporation 24·3 grains per gallon of solid matter were left, consisting of

Silica, iron, alumina	traces.
Carbonate of lime	8·2
Sulphate of lime	6·3
Carbonate of magnesia	3·6
Chloride of sodium	1·2
Organic matter	5·
	24·3

"The hardness was 17¼ degrees after dilution, to show the latent hardness of the magnesia.

"The specimen No. 2 was less turbid than No. 1; some very fine brownish-grey

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sand was deposited on standing; it is free from colour, smell, and taste, but contains numerous visible insects.

"On evaporation 21·7 grains per gallon of solid matter were left consisting of

Silica, iron, &c.	trace
Sulphate of lime	5·4
Carbonate of lime	7·1
Carbonate of magnesia	3·4
Chloride of sodium	1·3
Organic matter	4·5
	21·7

"The hardness, after dilution, was 15½ degrees.

"This is, practically speaking, identical with specimen No. 1, diluted with a larger proportion of rain water.

"No. 3 was tinged, had much deposit, of greenish vegetable matter, which, after some days' exposure to the air, became brownish red. This water had a disagreeable smell like that of Thames mud. It is a smell like that of sewage, after the sulphuretted hydrogen and ammonia are fixed or removed.

"On evaporation 19·2 grains per gallon of solid matter were left consisting of—

Iron, Alumina, silica, &c.	0·2
Carbonate of lime	6·9
Sulphate of lime	3·2
Carbonate of magnesia	2·5
Chloride of sodium	1·5
Organic matter	5·2
	19·2

"The hardness was 12 degrees.

"This water has a taste as if it were brackish, which is not the case; the quantity of sea salt which it contains is not enough to be so perceptible as it appears to be. The taste is, I believe, occasioned by organic matter in process of decomposition.

"Though there is no positive evidence of these waters being in an unwholesome condition the quantity of organic matter which they contain is such, that they may easily become so, if they are not so already. Specimen No. 3 must be considered dangerous, and the others are hardly safe. In an economical point of view none of the water can be recommended for the supply of such a town as Newcastle, unless indeed (as is most improbable) softer water is not to be obtained within 20 miles. The annual loss to the town from using water so hard as these, would pay the interest of a very large capital expended for getting properly supplied.

"It is, however, obviously impossible to change the source of supply immediately; the safest plan will be, to direct all persons obliged to drink this water to boil it before doing so; this will soften it considerably, and arrest the decomposition of organic matter that may be in process of change. Lime, properly employed, will effect the same objects, but is less suited for popular use. If one part of lime water (i.e. water containing as much quick lime as it will dissolve) be mixed with about 12 parts of specimen No. 1, or 13 of No. 2, a large part of the lime and magnesia will be separated together with some of the organic matter, and the rest rendered harmless. Properly managed, this process would effect a great improvement in the water. After mixing the lime solution thoroughly with the water, it must stand some hours to allow the chalk which will be found to subside, the purification is much greater than any that can be effected by filtering. An excess of lime will be improper.

(Signed) "P. H. Holland.

"Whitehall, October 24th, 1853.

"P.S.—The specimen No. 1 is softened to 7 degrees by boiling, and to 6½ by precipitation of the carbonates by lime. The precipitates were in both cases *much* discoloured by organic matter."

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271. You did not yourself make any analysis of the water, and you are not competent yourself to speak as to the actual quality of the water and its effect upon the public health?—No.

272. What impression did you form?—The impression which I formed was that the water had not been of good quality, nor had been in sufficient quantity for some time; but that this had not contributed to the intensity of the epidemic to such an extent as had been supposed by many.

273. It was slightly unfavourable?—It was unfavourable; it was an element of the aggravating circumstances. I think there is sufficient proof of that in a document which I will put in to the Commission. I received this from Mr. Main, the secretary of the company, on the 3rd of October.—"With reference to the interview which I had with you on Saturday," says Mr. Main, "and the complaints which had been made to you respecting the quality of the water at present supplied by this company, I beg to say, that the discolora-

tion which was observed in the water one or two days last week was caused by the high winds lashing the water against the sides of the reservoirs: the depth of water being at present unfortunately below the stone penning; in consequence of which the water becomes discoloured with sand but with nothing of a deleterious nature." Now the collecting ground of the company consists of land, a considerable proportion of which is cultivated, and some of it arable land, and there must be to some extent organic matter brought down from thence into those storage reservoirs. That mineral and organic matter will settle down to the bottom of the storage reservoirs; and it must be the necessary consequence therefore that, when the reservoirs are very low and the wind is lashing the water about, the water must become turbid and that there must be something more than mere sand; that it would in fact practically become unfit for dietary purposes.

274. Did you pay any attention to the state of the sewers so as to have any intimate knowledge of them?—Yes, I examined some of them myself.

275. Personally?—Personally; and I took evidence from the town surveyor, which evidence altogether as taken I will now put in, if you please, and the evidence of Mr. Main and of Mr. Nicholson, the secretary and the engineer of the water company, and the evidence of Mr. Wallace, the town surveyor of Newcastle.

276. You are aware that we shall ourselves examine those very gentlemen?—Certainly.

277. You put this in for our use to extract therefrom if we think it of importance?—Just so. I would say as to the sewerage, for I would make a clear distinction between sewerage and drainage for present purposes, that the sewerage of Newcastle, both from what I saw myself and from the evidence of Mr. Wallace, is exceedingly defective.

278. Have you frequently personally examined the sewers in other places?—I have.

279. Comparing the state of the sewers in other places with the state of those in Newcastle at the time of your visit, you think that the sewerage here is defective?—I would rather not speak comparatively as to other places; but the sewerage of this town is very defective; and I would point out in what respect—viz., that frequently several large sewers with very great inclinations, through which a man could pass with very great facility, would fall into one sewer smaller than the least of the three or four.

280. Do I rightly understand you to say that you have found branch sewers larger than the main sewers into which they fall?—Yes; indeed Mr. Wallace, in his evidence before me, himself mentions one such instance—viz., that a 6 feet by 4 feet sewer down a part of Dean-street falls into a 5 feet by 3 feet sewer in the Side and Sand-hill.

281. And that is not in your opinion a desirable state of things?—Certainly not. Then with respect to drainage, meaning by that the branch drains for houses and buildings, there is no such thing in Newcastle, speaking of it systematically.

282. There is no systematic drainage?—There is no systematic drainage in Newcastle, I found none anywhere; no means by which animal or vegetable refuse or excrementitious matter can be removed away—such matters, I mean, as are removable in water. You will see that Mr. Wallace himself stated to me that comparatively very few houses in the town have any connection with the sewers.

283. Does the defectiveness of the drainage, which you assert, apply equally to the better, as to the worse class of houses?—As far as my experience extends it does; but I would wish the Commission to bear in mind the exigency of the time when I was here, and which required that my whole attention and my whole time almost should be given to those infected districts, where the disease was raging. Therefore I did not give so much attention to the more respectable parts of the place.

284. Did you visit a good number of the houses in those infected districts yourself?—I did; I should think there was not a court or place that I did not visit, and I went into many hundreds of the houses themselves.

285. What is your opinion as to the state of those houses and courts generally in respect of the specific points of privy accommodation and ash-pit accommodation, the frequency or unfrequency of their being emptied and cleansed, and their state generally?—In the Sandgate district any privy accommodation at all is the exception; and it was almost impossible, even during the raging of the epidemic, to place the feet upon the ground without pollution from excrementitious matter—that would be so far even as the chares themselves were concerned—and, within the tenements, very often where persons were dying or dead of cholera I found the utensils that had been used in the night with the contents unemptied, and the stench almost stifling.

286. You believe that those remained unemptied from want of the places into which to empty them?—There were no such places; but the contents were poured out upon the surface of the courts or streets. Wherever there was a gully grating (in the morning when I went out) in any street, the whole space around it for some feet would be covered with excrementitious matter, where persons had brought utensils already and poured them upon the gratings.

287. Did you find the accommodation in respect of ash-pits more extensive?—No.

288. Do you think that the scavenage of those districts, as then performed in the height of the cholera time, was satisfactory?—I must do the sanitary committee the credit of saying that while I was here, which was during the worst part of the pestilence, everything that could be done or suggested was done at once. A great number of carts and scavengers were employed to remove these offensive matters as rapidly as possible;

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but with respect to the Sandgate district no amount of scavenging would keep the place clean.

289. Are there any other districts, such as Pandon, which are equally bad with Sandgate; or how do they stand comparatively?—Pandon I take to be almost a continuation of the Sandgate district; its condition is similar.

290. (*Mr. Simon.*) You include Pandon in your description of Sandgate?—Certainly.

291. (*Chairman.*) I believe you have devoted a good deal of attention to the question of churchyards?—Yes.

292. Did you pay any attention to the then state of the churchyards here?—Only a very cursory examination, for several reasons; one of which I have already given to the Commissioners, viz., the necessity of so much of my attention being given to the immediate vicinity of the houses; and secondly, because the Provincial Burials Act had then recently passed, and I knew that Dr. Sutherland, one of the inspectors appointed under that Act, had arranged for a visit to Newcastle for the express purpose of examining the burial-grounds here, with a view to their being closed; therefore I did not feel it necessary to pay particular attention to the condition of the burial-grounds.

293. It was stated by Dr. Headlam, in his evidence, that in his opinion cholera prevailed pretty extensively and pretty severely in what he called healthy districts in Newcastle. In these minutes of yours of the 23rd of September you state, "I would say "in the most emphatic language I can use, that in no case did I find cholera or diarrhœa "approaching cholera, without finding in the same place adequate causes, consisting of "unremoved decomposing organic matter, in connection with moisture"?—That is the fact. I confirm that fully.

294. Did you examine all the seriously infected districts personally?—I did almost daily.

295. Would you say that there was no such seriously infected district which was in a healthy condition in a sanitary point of view?—I should say certainly not; there was none within my knowledge. I think, with some little explanation, I should perhaps not differ far from Dr. Headlam. It would be this, that a district near Blenheim Street, Westmoreland Lane, Peel Street, and a number of other places in a part of the town comparatively recently built that ought to be very healthy, where there was not a clay subsoil, was made exceedingly unhealthy, because when the houses were placed upon the ground they were too densely built together, and such privy conveniences as there were, were positively within the houses themselves. Peel Street might be taken as an instance of what I refer to; that part of the town ought to have been very healthy, but it has been made unhealthy by the cupidity of the persons who erected the houses, and by the want of all arrangements having reference to health.

296. Have you found any of these infected districts to consist of houses which, from the information you received, you have reason to believe have been recently erected?—I should suppose from their appearance, some of them would have been erected probably eight or ten years, possibly twelve years or so, but within twenty years at the most.

297. Many of those in Sandgate having stood a very much longer time?—A very much longer time.

298. Did you find the sanitary condition of the comparatively new houses as bad or better than that of the old houses?—Where the epidemic was very intense—in the higher and more recently built part of the town—the intensity was an internal one, so to speak, under the roofs of the buildings themselves. In the Sandgate district it pervaded the whole district; everything was bad; but in the part to which I refer, about Peel Street and all that quarter of the town, the proximate causes of the epidemic were under the roofs of the buildings themselves to a very great extent. They were without any means of ventilation, and therefore the foul air could not escape.

299. Do you consider the paving sufficient?—That is variable in character. In the Sandgate district the paving chiefly consists of shingle or boulder stones, very unsuitable for the habits of the people and for the constructive character of the appurtenances of the houses; because all those wide interstices between the paving-stones serve to produce stagnation of refuse matter, even when there is an inclination of the surface. In the other part of the town that was so severely affected there was no pavement at all, but the mere soil; there was no pavement at all, generally speaking.

300. Reviewing your whole experience of Newcastle, would you consider that there is any district of the town which, in a sanitary point of view, is so well provided or conditioned, as reasonably to entitle it to an immunity from epidemics in a severe form?—I must give you an answer to that question with the same qualification as I have used before, viz., that I was so confined to the infected districts as not to feel myself at liberty to go much into parts of the town entirely free from the disease; therefore, I cannot speak from personal knowledge of any parts of the town of Newcastle that were entirely free from cholera; and therefore I cannot speak as to the causes of the immunity.

301. Reverting to the question of paving or non-paving, had you an opportunity of making such an inspection of the soil, in any places, as to ascertain whether it had been in any degree contaminated with sewage water by infiltration from above?—I had no excavations made for that special purpose, but, speaking from experience, I should have no doubt what-

ever that the subsoil is extremely polluted with offensive matter, especially in the part which is unpaved.

302. You spoke of Blenheim-street; what is the character of that street as regards the width of it, the character of the houses in it, and so on?—Blenheim-street is more than the ordinary width, the houses are not lofty, and there are small gardens or areas in front of those houses. I think that there were not many cases of cholera in Blenheim-street proper, but rather in the narrow streets that have been improperly inserted between it and other similarly wide streets.

303. In narrow courts or chares, or whatever they are called in the vicinity?—There are no chares in that part of the town. There were not many cases of cholera in Blenheim-street itself. Blenheim-street ought to be a very good street and ought to be very healthy.

304. Did you inspect the town of Newcastle, and the situation generally, with sufficient accuracy to enable you to state, as an engineer, whether it affords facilities for proper sanitary works in respect of sewerage and drainage?—I have rarely seen a town more capable of being drained efficiently and economically than Newcastle.

305. That is your deliberate opinion?—That is my deliberate opinion; there cannot be a doubt of it.

306. Did you look into any of the sewers and inspect their actual condition?—Yes, I did.

307. What was that condition at the time?—In some places I found deposit. There were some few of the sewers that were formerly deans, *i. e.* brooks, I think, now partly open and partly covered, in a very unsatisfactory state,—in a state capable of being injurious. I think in these inspection reports you will find a reference to one or two of them.

308. Can you speak pretty confidently to the general state of the sewers here? Did you make such an inspection as would enable you to speak definitely upon them?—Not more definitely than I have done, I think. So far as my knowledge extends, and so far as I could judge from Mr. Wallace's evidence, the sewerage of Newcastle is very defective.

309. In the system generally or individual detail only; or is there any system?—I should not like to say that there is a system; it seems to have been put on piece by piece, or piecemeal as people sometimes say, just as it happens, without any consideration of the area to be drained.

310. You find that habitually in many towns?—I do not often find it the case to such an extent.

311. Did you inspect any sewers constructed quite recently?—I am not able to say as to the date of their construction at all; but I saw one in course of construction.

312. Where?—Near the south western corner of the cattle market, and it was being made egg-shaped with a flat bottom; that was a form which I had not met with before, and for which I was not aware that there was a precedent.

313. You do not think that a very eligible form?—Certainly not; I have under special circumstances made them of the egg form, pointed at the bottom, and have known of their being so made; but never egg-shaped with a flat bottom.

317. (*Mr. Bateman.*) Does not it depend upon the fall a good deal?—It depends something upon the fall, no doubt.

318. And the quantity of water going through?—Yes. We are accustomed to consider that a flat top and bottom with straight sides is the worst possible form of sewer; and therefore, taking that as the basis, any remove from it should be a little better; but a flat bottom is most objectionable, generally speaking.

319. (*Chairman.*) You do not think the one is very materially better than the other?—Not very much.

320. From your experience would you say that that is the form of the sewers in this town generally?—I think not. Mr. Wallace says in his evidence, "We are making one "now at the cattle market. I think it is 3 feet 6 high, 2 feet 9 wide, and a flat bottom of "20 inches." He also says, "The sewers are principally of brickwork, sometimes of stone, "but not often. We have them of all shapes, but of late years we have principally put "them in of the egg shape. We have such a declivity in the town that it means nothing "what shape they are; they will wash themselves clean. Not all the sewers in the town "are clean; but it very rarely happens that we need clean them out."

321. Do you remember what was the slope or inclination of the sewer in question?—I do not; there is a considerable fall no doubt. With a considerable fall I should not choose to make an egg-shaped sewer with a flat bottom.

322. The fact of a considerable inclination does not altogether remove your objections to it?—Certainly not.

323. Referring to this same sewer, did you notice in it any deposit of filth at the time that you were there?—There was none. There could not be, because it was only in course of construction; no sewage had passed down it.

324. As the conduct of the officers of the Board of Health is rather impugned in this matter, we would wish to give you an opportunity of stating whether or no, as an officer of the Board of Health, you honestly and conscientiously did your utmost to discharge the duties entrusted to you?—Most certainly I did, and I trust that no person in Newcastle would call that in question. I never heard that it was so. I need not say to the Commissioners that I came here, as of course did the medical inspectors of the Board, at a moment's notice, with my life in my hands, going about during the midst of that

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pestilence incessantly, inhaling the most intensely infected atmosphere that has perhaps existed in this country since the Great Plague, and that something might be inferred from that as to a desire to discharge one's duty.

(*Mr. Town Clerk.*) I can only say that we are grateful for the assistance we received from Mr. Lee, and I never heard it breathed that any one doubted his usefulness to us.

(*Mr. Lee.*) I think I said to the Commission (if I did not I should wish to do so) that every suggestion of mine, except the bombardment of Sandgate, was at once adopted by the sanitary committee, and carried into operation most vigorously; and I am grateful for that appreciation. I would wish to add one word upon two points. I omitted in my evidence to draw the attention of the Commission to a brief report presented by the town surveyor, as to the effect of the palliative remedies suggested by myself; I mean as to the disinfecting accumulations of organic refuse by burying them up in fresh common earth. The Commissioners may have it from the town surveyor in his evidence. It is of importance perhaps in a *national* point of view, if this country should be afflicted severely with cholera during the next year, as is apprehended.

326. (*Chairman.*) What was the other point?—The other point was this: to call the attention of the Commissioners to the fact that though I am willing to exonerate the water company to a very great extent, from grievous charges which have been made against them, yet during the epidemic, and as far as I know nearly through the whole of the epidemic, they were selling for trading purposes a very large quantity of water, amounting to some 3,000,000 gallons per week. I will put in, if you please, a return from Mr. Main; but you will get it from him. I merely wish to call the attention of the Commission to the fact.

The following note was afterwards communicated by the witness.

Sir, *Ayr, N. B., 24th February* 1854.

When I stated in my evidence that Sandgate was without a parallel, I restricted myself to England and Wales, not having at that time made such an examination of Scotch towns generally as would have justified me in a strong opinion respecting them.

Since then, however, in the discharge of my official duties, I have made specific examination of nearly all the considerable places in Scotland, including Edinburg, Glasgow, Greenock, Partick, Paisley, Airdrie, Beith, Haddington, Dundee, St. Andrews, Arbroath, Aberdeen, Campbellton, &c.

For extent of area and utter defectiveness, Sandgate, or the district thereabouts, is still incomparably the worst place I know of on the whole.

I remain, &c.

J. Burnley Hume, Esq.
Chairman, &c.

WILLIAM LEE.

R. Rawlinson, Esq., C.E.

ROBERT RAWLINSON, Esq., C. E., sworn:

327. (*Chairman.*) You are a superintending inspector of the Board of Health?—I am.

328. In the engineering department?—Yes.

329. For how many years have you been so?—Since the formation of the Board.

330. Had you previously paid any attention to sanitary matters?—Yes.

331. In the execution of your duties as superintending inspector, have you inspected a considerable number of towns in the kingdom?—I have, and have made fifty-one reports upon the towns here mentioned. (*Here the witness handed in a list.*)

332. You have made fifty-one reports, I see, with reference to about thirty-nine different towns which have been inspected by you?—I believe about that number.

333. When did you first visit Newcastle?—I visited Newcastle officially on Tuesday the 18th of December 1849.

334. You were sent down by the General Board of Health to make an inquiry?—I was.

335. Under what circumstances? Petition or otherwise?—It was upon the mortality.

336. Owing to the mortality having exceeded the rate mentioned in the Public Health Act, of twenty-three per thousand?—Just so.

337. Did you personally inspect the town?—I did.

338. Pretty generally or only in particular districts?—I inspected it generally.

339. Did you also take evidence as to its condition?—I did.

340. Were you enabled to form a confident opinion on the subject, and such as you would yourself rely upon?—I was.

341. Did you ever make a report to the General Board of Health?—I did.

342. At what date?—On the 7th March 1853

343. Not until then?—Not until then.

344. Is it the usual course of proceeding to defer the making of a report so long?—It is the only instance in my experience of so long a delay.

345. Can you explain to us the reasons of that delay?—The reasons which I have to offer are these: It was the first town in which I had been ordered by the Board to make an inquiry without a petition or memorial, or without the inquiry being in some way promoted by the local authorities. At the time I was requested to make the inquiry in Newcastle, I had taken some thirteen inquiries, I think, in succession.

346. Upon petition?—Upon petition or memorial I think there were Ormskirk, Carlisle, Penrith, Morpeth, Gateshead, Sunderland, Alnwick, Berwick-upon-Tweed, and some others.

347. Mainly towns in this part of England?—In this part of England.

348. Is it optional with a superintending inspector to make a report or not, after he has made such an inquiry?—I should say not optional; but in the multiplicity of business, where a man is constantly working, as I have generally been, when the state of my health would permit it, from twelve to sixteen hours out of the twenty-four—if he has a choice, he generally leaves that undone which he thinks will be of the least use. Now, I felt satisfied that any report which I might write on Newcastle-upon-Tyne, so far as the local authorities were concerned, would be a dead letter; and as I was urged daily and weekly by other parties promoting inquiries in other places, I gave my attention entirely to those places which did promote them; and again the Public Health Act is not equally applicable to all cases; and Newcastle is one of those places to which it could not have been applicable, if I had written a report. One of the evils connected with Newcastle at that period was the limited boundary; now, under the Public Health Act, there is a provision for extending boundaries; but I may say that itwould have been impossible under the Public Health Act, as Newcastle was situated, to extend the boundary; therefore I considered that a local Act was necessary. It has been said that inspectors of the Board of Health always find occasion to report, and also always find occasion to recommend the application of the Public Health Act. That certainly is not true; for in Sunderland also, owing to its being similarly situated, (the boundary being limited, and the corporation wishing to extend the boundary) I told them that the Public Health Act would not serve them in that instance. They applied accordingly for a private Act, and they urged me to write a report to facilitate them in getting that private Act, and not for the sole purpose of getting the Public Health Act applied.

349. Then do I rightly understand you to say, that you consider that the main object of making a report would have been the introduction or application of the Public Health Act to Newcastle, and that you did not make that report because you thought that such application of the Act would not have been of material benefit?—Because I knew that the requisite extension of boundary could not take place; and I felt satisfied that the Public Health Act would be received apathetically by the existing authorities, if not opposed.

350. How did you come to that conclusion with respect to the feelings of the local authorities,—and upon what grounds?—The conclusion I came to was, in the first instance, founded on the absence of any petition or memorial from the constituted authorities; and secondly, though, during my inquiry, certainly every attention was paid which was requisite (I think it was in this room that I held the inquiry), I did not see the town clerk personally, he not being present. The mayor, however attended the inquiry, and the guardians promoted the inquiry, that is to say, evidence was given by them; but indirectly, and from the evidence given before me, I understood that the Act would not be received with favour.

351. Did you take pains to inform yourself as to the disposition of the local authorities?—It is very difficult to explain the matter in words: but I might mention the want of any communication from them. I have never received, from the day of my inquiry to this moment, one letter or one word of inquiry from the authorities about my report. From Dr. George Robinson, who was the great promoter of the inquiry, I have received many letters recommending me to publish that report.

352. Have you been accustomed in other places to find a greater activity and anxiety with respect to the matter than you did here?—Unquestionably.

353. And is that the main point on which you would rely?—It is not. If time had allowed I certainly ought to, and would, have published a report upon Newcastle; whatever might have been done with it afterwards. Of course, when the report is published, my power ceases. On Gateshead I did report; but in Gateshead unquestionably the local authorities were very solicitous to have the Act introduced.

354. I question you rather closely as to this; because the statement which you have made amounts to a charge at all events of indifference against the local authorities?—I cannot alter that statement.

355. (*Mr. Town Clerk.*) I do not quite see the grounds upon which you arrive at it. You have mentioned my absence, a very trifling circumstance certainly; but I happened to be in London at the time and knew nothing of it?—It is well known that the corporation were not only not promoters of the inquiry, but certainly went beyond that.

356. They did not appreciate your labours, you think?—I think so; not only from what I saw, but also from what I was told in private by members of it.

357. (*Chairman.*) Did you endeavour to inform yourself as regards the disposition of the local authorities towards your inquiry, and the success of your inquiry? and do you deliberately repeat the statement, that you came to the conclusion that they were not anxious in the matter, and not favourable to the prosecution of it?—That is most unquestionably my impression.

358. With reference to the clauses which, in your report of the 7th of March, 1853, on Newcastle, you suggested should be introduced into the Local Act of that year, what was the effect of those clauses? were they sections of the Public Health Act?—They were.

359. What were the sections?—The several sections numbered 4 and 7.

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360. Those, I find, refer to the constitution of the General Board of Health. What are the others?—Sections 8 and 9.

361. Those are with regard to a preliminary inquiry?—Yes; then Sections 10 and 11.

362. Have regard to the application of the Act?—Yes; then Sections 12 to 34.

363. Refer to the constitution of the Local Board of Health?—Section 36.

364. As to the appointment of committees?—Section 50.

365. That merely refers to a place whose inhabitants shall be less than 2,000; that has not much application here. What is the next?—Section 76, in regard to the compulsory supply of water.

366. Had you occasion during your inspection to inquire into the state of the water supply in any parts or districts of this town?—I do not think that I made any detailed inquiry. I made a general inquiry as to the water supply, and have here with me the notes of the evidence which were taken at that inquiry. These are the notes of the evidence then taken, with the documents put in. (*The witness here handed in the notes and documents.*)

367. Whose hand writing is this?—That is the short-hand writer's abstract.

368. These are the notes of the evidence taken by the short-hand writer employed by you?—At my inquiry.

369. What further sections were there?—There is a clause relating to the water supply at the end of my report put in before the committee of the House of Commons.

370. You suggested either the insertion of section 76 of the Public Health Act or a section analogous to it for that purpose?—Yes.

371. Proceeding with the other sections, what was their purport?—Sections 105 and 121.

372. It seems to me, then, that all the sections alluded to refer simply to the question of establishing or not establishing a local Board of Health here, and that one additional clause relative to a compulsory supply of water was suggested by you at the end?—There are several other clauses—there are B. C. and D.

373. Yes, but B. and C. have reference to the same question of a local Board of Health; D. however, I see, refers to a different matter, viz., the levying of highway rates. If therefore I understand this report of yours rightly, the sections suggested by you for insertion in the Local Improvement Act of 1853 refer exclusively to the question of establishing a local Board of Health here; excepting two clauses marked D and E, having reference to highway rates and the compulsory supply of water. Is that the case?—It is.

374. In what condition, in a sanitary point of view, did you, at your inspection in 1849 find the town of Newcastle?—Very defective indeed.

375. In respect of sewerage what, in your opinion, was the then state of the town?—I found that there was no proper system of sewerage; that the sewers had been made from time to time; and that such sewers as existed in the old parts of the town were not communicated with by the houses on either side, or if so, to a very limited extent only; that it was the exception for houses to be connected with them. I have also heard what Mr. Lee said as to the filthy state of the gully grates; I observed it at that time.

376. Did you actually inspect any of the sewers?—I did not.

377. You cannot speak confidently as to the construction or dimensions?—I cannot.

378. Did you take evidence from the town surveyor as to the sewers?—I did, which evidence will be contained in these notes.

379. Was it from that source that you formed the opinion which you have expressed as to the general defectiveness of the sewerage of Newcastle?—It was from that and from other evidence given to me, to the effect that larger sewers ran into smaller ones, and that there is a part of the town, the name of which I do not recollect, which is frequently extensively flooded over its surface; one of the higher parts.

380. Owing to what?—Owing to there not being a sufficient outlet through the sewers for the discharge of the flood waters.

381. An insufficiency of dimensions?—An insufficiency of dimensions.

382. That is a flooding by storm water I suppose you mean?—Of storm wate[illegible]m the higher lands; I was also informed that sewers in the low part of the town [illegible]n the quay had sometimes been burst by the water.

383. To what causes would you as an engineer attribute that?—Not necessarily because the sewer was too small; for I can conceive of a large sewer being burst more readily than a small one. It would be from an improper construction or from the use of improper material. There is some difficulty in passing heavy floods of water, down so steep a gradient as Newcastle stands upon, into water at rest; therefore you might have the largest possible sewer blown or burst with a large body of storm water descending and acting like a ram upon the water in the sewers when the river was flooded.

384. Then do I rightly understand you to say that the position of Newcastle on so steep a slope offers to a certain degree obstacles and difficulties to the proper sewerage of the town?—No engineering difficulties; it would require the engineer to consider well what material he would use in the lower parts of the town.

385. It offers difficulties, but no insuperable obstacles, to a proper system of sewerage?—None whatever.

386. Would you say that the physical contour of Newcastle is such as to require competence and skill on the part of the engineer, but that it offers no serious difficulty to one who

should be so qualified?—None; its facilities are in one respect its difficulties, that is to say the great facility for passing the water off rapidly, if not properly considered, becomes a difficulty.

387. Requiring competent skill or requiring more than that?—Requiring proper attention on the part of a man who has been accustomed to turn his attention to hydraulic works.

388. And anything more?—I think not.

389. With reference to the drainage system. Did you find any drainage system distinct from the sewerage system?—Do you mean the house drainage?

390. No. Did you find any system, either of soil or surface drainage, for carrying off rain water from above or spring water from below, separate from the sewerage system?—No.

391. Facilities for one are facilities for the other, are they not?—They are.

392. Have you inspected the sewers of other towns of the same antiquity as Newcastle?—I have.

393. Did you find the sewerage of Newcastle more defective, either radically or in degree, than that of other towns?—For the extent of area and population I think I can safely say that in Newcastle I found that more money had been expended upon sewers than in any other town where I had been.

394. And to what effect and purpose? Do you think that it had been judiciously expended?—In any answer I do not wish to pass an unnecessary censure upon persons who have had no opportunity of doing what ought to have been done. It had never entered into any person's mind to set out with a comprehensive system; and therefore the sewering had been a system of patchwork and had arisen upon the necessity of the case. I believe that the new part of Newcastle is sewered as well as the knowledge of that day enabled the parties to do it.

395. Do you not find in other equally ancient towns a similar patchwork system of sewers?—I do; but I know no other town that had sewerage to so great an extent as Newcastle, imperfect and limited as that is. In no town where I have enquired, that I can call to my recollection, did I find that so much money had been expended upon sewers as in Newcastle; and I do not altogether blame the authorities. The new parts of the town had been, as they conceived, effectively sewered, and had been joined on to the old system, existing in the low parts of the town; but there has been no general system of sewerage; only from time to time a great deal of money has been expended in making sewers.

396. Had the money been judiciously and usefully expended or otherwise?—We must always speak relatively. I believe that the intention was to expend it to the best of their ability; and very probably it was so expended at that time.

397. (*Mr. Town Clerk.*)—The town surveyor would, I dare say, complain of the defect that you point out—the want of communication of the houses with the common sewer?—He did, because you had no power to compel it; I have found the same in other towns. In Birmingham, for instance, I found that the largest houses in the best parts of the town had no means of getting rid of the water-closet refuse, but by passing it out on to the gutter on the side of the highway; houses letting for 150*l.* and 200*l.* a year were drained in that manner—drained out on to the surface of the highway.

398. For what extent of district?—In Edgbaston, and the suburbs of Birmingham generally; over a large area. It was about the period of my inquiry at Newcastle—I think it was the summer previous. They had no local authority to go into these districts; and no local authority to compel houses to join on to the sewers.

399. (*Chairman.*) Would you say that the state of the sewers in Newcastle compares favourably with the state of the sewers in Birmingham and other places?—A far greater extent of sewerage had been done in Newcastle, taking population for population, than had been done, I believe, in Birmingham or any other place which I have inspected.

400. You have mentioned that larger sewers occasionally opened into less, and that in your opinion the system was a patchwork and defective. What proportion of it would you, as an engineer, consider available, and such as could be properly made use of in any adequate system to be hereafter adopted?—I believe a great portion of the sewerage in the higher and newer part of the town is available: and that an alteration and improvement would be necessary in the steep slopes and on the quay portion of the town. Arrangements I think require to be made to carry storm water safely away.

401. Did you examine the district of Sandgate?—I do not remember the names of the districts now. I examined the town generally, both within itself and in its suburbs.

402. Did you find any district of any extent of which you might say that it was totally destitute of sewers?—I did; a district beyond the boundary, where there was neither pavement nor sewerage.

(*Mr. Town Clerk.*) That was then out of our jurisdiction; with respect to pavement and sewerage we have now acquired it.

403. (*Chairman.*) Did you in 1849, within the limits of the then borough, find any district of which it might be affirmed that it was totally destitute of sewerage?—I do not remember noting any district within the borough.

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(*Mr. Town Clerk.*) It is the township of Westgate to which you are referring, built by adventurers.

404. (*Chairman.*) In this report of yours of the 7th of March, 1853, I see it stated that the mortality of the town, at the time when you visited it, was exceedingly high; that this excessive rate of mortality was principally due to the great prevalence of the zymotic or preventible class of diseases; and that the principal causes were as follows: '1st. that the sewerage of the town is most defective and inefficient.' I do not quite understand that taken in connection with your present evidence?—It is quite correct, it is defective. The defect is this, that there is no house connexion with the sewers. Merely to make a sewer in the street and to leave it there, is of no use, excepting for surface water; but so far as regards the actual making of sewers below the ground, I think I can safely say that there are more in Newcastle than in any other town I know. As regards houses connecting with them, that is another matter—of drainage.

405. Then in respect of main sewers, Newcastle was very well provided; but in respect of branch sewers or drains into those main sewers, it was very inadequately provided?—Very inadequately provided.

(*Mr. Town Clerk.*) That is a correct statement of the case.

(*Mr Rawlinson.*) I do not know whether the Commission wish for my opinion as to the cause of that excess of disease?

406. (*Chairman.*) There can be no objection to your stating any opinion which you may have formed in the course of your experience upon these matters?—I think it is quite possible to have a town as perfectly sewered as human ingenuity could devise, and I think it is also possible to have that town as perfectly drained also, and yet to have an excess of preventible disease. If you have, as in Newcastle, a vast population crowded upon a small area, if you have streets and courts into which the sun never shines, and if you have room-tenements overcrowded by numbers of human beings, who never dream of opening a window, and whose only industry is to block up the means of ventilation, you may have excessive preventible disease in those places, even after you have drained and sewered, and given them water supply to the utmost extent that you can think of.

407. I understand you to say that you do not think the want of sewers and drains to be the only source of excess of disease, but that ventilation and overcrowding and other things are also co-operating causes?—Overcrowding and want of ventilation, I think, cause as much preventible disease as anything else, as far as my experience goes.

408. That is the third of the causes assigned in this report of yours: "That the dwellings of "the poorer classes are overcrowded to a fearful extent; that they are undrained, unventilated, "and in an uncleanly condition, more especially those situated in those courts and alleys of "the town." You renew your opinion that these circumstances have been to a great extent the causes of the excess of zymotic diseases?—I am led to that opinion from the inspection which I have made in various parts; I find that it is very dangerous to theorize as to any one cause producing excess of disease. We have had theories as to the course of rivers—as to stratification—as to elevation—and as to subsoil. I do not find cholera due to any one set of causes. I do not find that it does confine itself to the course of rivers. I do not find that it does choose or ravage particular stratifications; neither do I find that it prevails exclusively in excess in low, flat, and undrained districts. I find cholera in Newcastle upon the slope of a hill, where drainage is the easiest thing possible. I find the same in Gateshead, and I find it in an isolated village, in Wrekenton, some three miles distant, 500 feet above the river, with streets wide and open,—certainly there are no drains, neither are there privies, but there is a vagrant population crowding the rooms to excess. I did not find it in Birmingham, which is a large town and probably the most healthy great town in the world, and which stands at an elevation of about 500 feet; it stands upon a series of contours, the subsoil being gravel and sand principally; and the whole internal drainage area is easy, and to the east and north. The artizans of Birmingham generally reside in self-contained houses. I find Wolverhampton standing upon the same stratification, at the same elevation, inhabited by people following a similar occupation; but the drainage there is to the south and west; that is to say, the outlets of the sewers pass over swamp lands to the south and west. In the one there has not been a case of cholera—the other, as the Commissioners know, has been ravaged with cholera. Again, as to Falmouth, a town which has scarcely a square yard of level site. It stands upon one of the purest stratifications, clay slate; the town gradually rises from that magnificent harbour to an elevation of 300 feet; but there cholera has prevailed. Plymouth the same. Drainage and sewerage can never cure these towns if existing conditions remain; that is to say the conditions of over-crowding, putting families and lodgers and large numbers of people into single rooms; and I think it most important that this should be known, and that people should not run away with the idea, that when a town is sewered and drained, everything is done for it that can be done. If this overcrowding remains, the excess of disease and immorality will remain also.

409. Do you also think that paving is one of the circumstances which are to be considered?—Cleanliness, to the greatest possible degree, is necessary.

410. You spoke of Wrekenton as existing at a high level, and that it had been very much ravaged by cholera; I think you also stated that it was perfectly destitute of sewers and drains?—It was, but if you had sewered and drained it as perfectly as man could, and had allowed the overcrowding and other evils to continue, you would still in my opinion have had the outbreak of the disease. I have heard a good deal said relative to the water supply of

Newcastle being the entire cause of the outbreak of Cholera. Now, as the Commissioners will have to inquire into the condition of Tynemouth, they may not probably get an analysis of water which I hold in my hand, which I had occasion to have made this spring, and which I can put in if it is thought advisable, showing that though the people in Tynemouth escaped Cholera, they are as imperfectly supplied, and perhaps are drinking as bad or worse water, than any town in England.

411. Where was the water taken from; what does "taken from stream in dry weather," mean?—The town is not supplied from that source; it is supplied partially from a quarry, and from a similar source, though not from that stream, from a source not nearly so pure; in fact the water supply in Tynemouth is so bad, that last spring, when I was there, there was an old woman sitting at every water-tap with a flannel bag tied over the muzzle of the tap to strain the water as it was sold to the people.

412. Then I understand you to put in this analysis of part of the water supply of Tynemouth, with a view to the bearing it may have upon the question of the water supplied in Newcastle?—I think it is very important that the facts should all be known to the utmost, and that no one feature of the case should be thought to have caused the late great and serious outbreak, until it be proved to have done so.

"To Robert Rawlinson, Esq., C. E.

Report on an Examination of two Specimens of Water from Tynemouth in Northumberland.

"These specimens were sent in two stone ware bottles, cork and labelled, "sample of water from Tynemouth; taken, July 20th, from stream in dry weather," and "sample of water from Tynemouth; taken, July 20th, from magnesian lime-tone quarry."

"The first specimen, that from the stream, was bright and clear, except from a few floating particles and visible insects, which filtering would remove, but it has an unpleasant bitter saline taste, rendering it unfit for a source of supply.

"Tests showed in it the presence of lime and magnesia in large quantities, combined with sulphuric acid likewise in considerable quantity, and also chlorides and much organic matter, principally of vegetable nature.

"It was about sixty degrees of hardness, did not soften much by boiling, and was quite unfit for washing with economically, and unpleasant to drink in consequence of containing a notable quantity of sulphate of magnesia or Epsom salts.

"Analysis showed the presence of 113·2 grains of solid matter in the gallon consisting of:—

Organic matter (chiefly vegetable)	14 grs.
Alumina and iron	0·7
Sulphate of lime	45·5
Sulphate of magnesia	32·6
Carbonate of magnesia	2·9
Carbonate of soda	12·6
Chloride of soda	4·9
	113·2

"The other specimen, that from the limestone quarry, was still more unsuitable for a source of supply, as it contained a large quantity of that very offensive gas, sulphuretted hydrogen. It had a brownish tinge, was rather turbid, and very offensive to the smell. Its hardness was twenty-nine degrees. It contained sixty grains of solid matter per gallon, consisting of:—

Organic matter	14 grs.
Sulphate of lime	28·6
Sulphate of magnesia	4·7
Carbonate of magnesia	5·6
Alkaline salts	7·1
	60·0

"Neither of these specimens can be recommended as sources of supply; they each contain so much earthy matter as to render them unfit for washing with, too much vegetable matter to be agreeable; while one is tainted with a bitter salt, and the other with an offensive gas."

"Whitehall, September 14th 1853. (Signed) "P. H. Holland."

413. I see it stated in your report of the 7th March 1853, that you made an inspection of the place in 1849, and found many nuisances within and without the town, will you be good enough to explain what these nuisances were to which you thus allude?—The nuisances arose from refuse.

414. Among those nuisances do you also allude to narrow streets, confined yards and courts, crowded rooms and tenements, and so on?—Just so.

415. Those you think were also likely to have been causes co-operating with, and partly augmenting, the virulence of the late outbreak?—I do think so.

416. Unpaved surfaces, also?—And unregulated common lodging-houses.

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417. I see here that you state that the borough of Newcastle has obtained many Acts of Parliament, but not one or the whole combined contain the clauses necessary for its local government; do you make that statement with some experience in such matters?—I do.

418. And you make it deliberately?—I make it deliberately. They have not power to carry out, or compel parties to carry out, private drainage, or to compel a full water supply.

419. (*Mr. Town Clerk.*) Those are the particulars in which their Acts of Parliament are defective in your judgment?—I believe they are.

(*Mr. Town Clerk.*) That is obtained in the last Act of Parliament, the Act of 1853.

420. (*Chairman.*) You have made, as it were, a charge against the corporation, to the effect that they have evinced a great unwillingness to interest themselves in sanitary matters. Do you think that the fact that the Public Health Act would not have been applicable ought to be taken into consideration as accounting for it?—Perhaps I ought not to say that the corporation were apathetic in sanitary matters, but that they decidedly objected to be brought under the operation of the Public Health Act.

421. Then you would modify your previous evidence, as I understood, it to this effect; that the apathy and indifference of the corporation was rather an unwillingness to come under the operation of the Public Act, than an unwillingness to exert themselves for sanitary improvements?—I believe that to be the case.

(*Mr. Town Clerk.*) That is precisely so; they had a prejudice against the Public Health Act.

(*Mr. Rawlinson.*) Just so, and that I have found prevailing in other places to quite as great an extent.

422. (*Chairman.*) Have we arrived fully at your opinion? Do we now understand fully the opinion which you entertain upon this point?—I think so. Before I leave I would say that I do not wish to bring so gross a charge against the corporation as wishing to neglect the sanitary condition of Newcastle; and if my first replies have conveyed that, I wish to retract them: because I believe the corporation was not against having the power given to them for sanitary measures, but were decidedly against being brought under the operation of the General Board of Health.

423. Adverting again to the matter of the delay in the publication of your report on Newcastle, it is here enacted that, "so soon as can be after the completion of such inquiry, "the superintending inspector shall report in writing to the General Board of Health." Did I rightly understand you to say that the pressure of business with regard to reports in other places was so great, that the delivery of your report on the 7th of March 1853 was a reasonable compliance with the directions to deliver it as soon as can be after the completion of the inquiry?—I believe so. I worked as fully as my health would permit, and I have suffered most severely in my health since taking this appointment. I delivered in the reports as fast as I could put them out of my hands. I did not either willingly or deliberately neglect Newcastle; I certainly paid attention in preference to places where I thought there was more chance of the Public Health Act being applied.

424. (*Mr. Simon.*) You preferred places where the inquiry was adopted upon petition from the inhabitants to those where it was not?—Certainly.

425. (*Chairman.*) Supposing you had used greater diligence in delivering your report in the case of Newcastle, you would have been obliged to delay correspondingly the report on some other place, as to which you considered the report more important?—Most certainly. Not more important relatively as regards the health of the inhabitants.

426. (*Mr. Town Clerk.*) But more pressing in time?—Yes.

427. (*Chairman.*) You gave some evidence recently as to the state of the houses here, in respect of their connection with the main sewers, did you not?—No. I spoke of the old portions of the town generally, and my impression is, if I recollect rightly, that I was told that there were sewers in the streets, but that the houses did not connect by means of drains—not any particular property.

428. You have not any intimate personal knowledge of it?—I have not.

Extracts from the short-hand writer's notes of the evidence taken, and of the documents received, by Robert Rawlinson, Esq., Superintending Inspector of the Board of Health, at his Inquiry at Newcastle-upon-Tyne, 18th and 19th December 1849.

* * * * *

"Mr. Mickle begged leave to state, for the information of the Superintending Inspector, that repeated applications had been made by the inhabitants to the corporation, without effect, for an improvement of the road leading from the East Ballast hills, and passing onwards by the ropery to St. Peter's and the Mushroom. The corporation had promised repeatedly to attend to their representations, but had never done so. The road was at present in such a state as to be detrimental to the health of the inhabitants, and it was impassable. No carriage could travel upon it, and horsemen are under the necessity of taking the footpath. He was employed at Messrs. T. and W. Smith's rope manufactory, near there, and lately saw a girl sixteen or eighteen years of age nearly run over whilst on the footpath; had she not 'given mouth,' she would probably have been killed. This was of daily occurrence, and he did not blame any party, for however excellent as an equestrian, a man could not ride on the proper road; and in case of fire, no fire engine would be able to pass along the road. There had been a uniform complaint made as to the state of the road

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Extracts from short-hand writer's Notes of Evidence, taken 18th Dec. 1849.

for the last nine or ten years, and he had been induced to take an active part in the matter for the benefit of the inhabitants, and from the annoyance of taking men out of the manufactory, for the purpose of relieving individuals stopped on the road. In 1840 a petition was presented for the improvement of the road by the late respected Alderman Ridley, who was in the habit of walking along that road daily. He exercised his influence, and got an excellent footpath made, with a distinct promise that the cart road should be repaired. Nothing of the kind had been done. At the time of the passing of the Municipal Corporations Act, a person, still living—an aged and respected mariner, John Walker—was employed at nine shillings per week at a hutch on this road, his wages being paid by the corporation ; he would venture to say there was not such a piece of road, he would not say in this borough, but in England. The inhabitants of the district of St. Peter also made great complaints of the want of water, there being only one well for the supply of 3,000 individuals. There was also a want of gas, for coming from the well-lighted streets of Newcastle to St. Peter's was like leaving an illumination and passing into a dungeon. He belived both the gas company and the water company were prepared to lay pipes, but the proprietors of property in that neighbourhood would not permit the pipes to be laid without an exorbitant charge was paid. He also complained that they had to pay sewerage rates to the corporation, when no sewers were laid in their district ; all the drains were stopped up from the effects of the bad road, and after the sun got up there was a most offensive smell which engendered disease. The district of St. Peter's was the part most severely afflicted with cholera when it visited the town, from twenty-five to thirty deaths having arisen from that epidemic in the immediate locality. He considered that these matters called loudly for the interference of the authorities.

"The Superintending Inspector said the question necessarily formed a part of his inquiry, but that it might turn out that the corporation have no power, first to compel the formation of the road, and secondly to maintain and keep it in repair.

"Mr. Gibson said this was the case. He happened to be on the town improvement committee of the council, and this question had been constantly before them for some time. It was not a public road, inasmuch as there was a bar across it, placed there by Mr. Plummer. An attempt was making to arrange with Mr. Plummer, and if the council succeeded in doing so, they would be prepared to make the road.

"Mr. Henry Turner said there were two roads, and the two must not be connected. Mr. Mickle spoke only of the road within the ancient limits of the borough ; Mr. Gibson was speaking of a road out of the borough, and leading into the township of Byker.

"Mr. Gibson said it was the same road."

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"Mr. Gray here handed in (among others) the following letter.

"Newcastle-upon-Tyne, 18th December 1849.

"Sir,—I beg to inform you that, on the 18th of October 1847, I was appointed by the corporation of Newcastle as sanitary inspector, which appointment I held till the 4th of March 1848, and during that time near to 1,300 loads of nuisance, &c., were removed from the streets, courts, lanes, and other filthy places, and all the close and confined lanes, yards, and alleys were limewashed and purified ; the dwellings of between 300 and 400 families were also limewashed ; I also caused to be removed about 400 swine ; the whole being done at the expense of the corporation of this town : and it is almost needless to say that such measures had the most beneficial effect on the removal of a malignant fever which this town was visited with at that time.

"I remain, Sir

"R. Rawlinson, Esq. "Your humble and obedient servant,

"Sanitary Inspector. "John Scott,

"Sub-inspector of Police."

"(*The Superintending Inspector to Mr. Cragie, one of the nuisance inspectors.*) Are the nuisances of such a character, that they are continually recurring ?—Yes ; ash-pits, privies, and accumulations of filth in lanes and alleys, principally caused by the insufficient drainage.

"Have you any report as to the present condition of places previously reported ?—Yes; the great evil arises from dwelling-houses in close confined alleys and places chiefly inhabited by Irish. In the places where the cholera broke out there were as many persons as fifteen, sixteen, and nineteen in one room ; I speak of Sandgate, Wall-knoll and Mount Pleasant.

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"Has the corporation the power, under its own Acts, to regulate lodging-houses ?—(*Mr. Turner.*) There is a clause in their new Act which gives them that power, but it is a dead letter." * * * * *

"Mr. Thomas Gray wished to state, on behalf of the board of guardians, that in every instance where a written complaint had been forwarded to them, that complaint had been attended to at once; but many parties were mistaken as to the extent of their powers, which, though peremptory and strong, were limited. To that limit they had gone in every instance, and in the case under consideration the board had done exactly what the Act allowed—cleansed and removed the matter complained of. But the evil was of daily recurrence, and required to be cured at the fountain head. Stirring it up, he was afraid, made it worse.

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R. Rawlinson, Esq., C.E.

19th Jan. 1854.

Extracts from short-hand writer's Notes of Evidence, taken 18th Dec. 1849.

"Mr. Jenkins, the inspector of nuisances for the northern district of the town, spoke as to the state of the sewerage in Brandling-place. The width of the sewer was only six inches, so that the filth could not get away, and it consequently overflowed, to the great discomfort of the inhabitants. At the present time there are several cases of fever and small-pox in Brandling-village.

"In answer to questions, Mr. Jenkins stated that there are between 200 and 300 houses in the neighbourhood; when the drain was put in, it was for two or three small houses, and it was never enlarged, which made the place in its present condition. The houses were occupied by the working classes, and the landlords, who got the property for the sake of county votes, would do nothing to keep it in repair.

"The Inspector asked what class of persons these landlords were?—Mr. Jenkins replied, all classes.

"Mr. H. Turner said, the houses were built after the election of 1826, for the purpose of obtaining votes.

"Mr. Jenkins said, he wished also to state the condition of some houses at Byker-bar occupied by muggers. He had *seen eighteen in one cottage, two ill of fever, and others lying with horses, altogether in a state of nudity.* They are principally English, wandering gipsies; they come here in summer, and go away in winter.

"(*The Inspector.*) Had they the cholera among them this summer?—Yes.

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A report from the town surveyor was then read, relative to the Newcastle baths and wash-houses, situated on the Garth-heads, Sandgate New-road, stating that they had been built by the town council, on a petition from the guardians of the poor, in 1848, and had been opened to the public in the August of that year, giving the statistics of their progress in public favour, and adding that great good had already been effected by the establishment of these the first baths and wash-houses in this district, and that people looked forward to the time when the corporation should be pleased to plant one or more of these most useful institutions in other densely populated parts of the borough.

"The Inspector said, this report was exceedingly gratifying, and creditable to the corporation.

"The mayor (Joseph Crawhall, Esq.) remarked that it is the intention of the Corporation to extend these establishments, and to plant them in other parts of the town. Previous to establishing those now in existence, he had gone over to Liverpool at his own expense, with the town surveyor, and made a minute personal inspection of those there established. They had availed themselves of such plans as they thought would be beneficial here, and the corporation were only awaiting the result of the experiment, which was certain to be successful, to carry out the system more extensively for the benefit of the town.

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"Mr. Hodge called the attention of the inspector to a privy in Nun's-lane, which the owners and occupiers of property in the neighbourhood contended should either be removed as a positive nuisance, which could not fail to prove injurious to the health of the inhabitants, or else have some more efficient means provided for cleaning it out. The privy had been erected within the last few years, and in the immediate neighbourhood a situation might have been found where there is a large stream of water, having a continued runner passing by it, a place called Darn Crook.

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"The Inspector said this was a matter which had excited his attention at different places, and he was sorry to say he had never yet seen a public privy which was not a public pest and nuisance. In many cases the very worst nuisance in the district was a public privy. It might be kept in order, but it must be by constant attention. Even if more than one family used one privy, it was rarely kept in order.

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Mr. Wallace said an immense quantity of water was plunged into the privy in Nun's-lane every night.

"(*Mr. Hodge.*)—Yes; and the smell arising from it is fearful. It has been suggested that a continual supply passing through a perforated pipe might have a beneficial effect.

"Mr. Gray, whilst on this subject, would call the attention of the inspector to clauses 92 and 93 of the Town Improvement Act of 1846. These clauses refer to places of convenience, which by the Act the council were empowered to order to be made. In some of the best streets of Newcastle, on one side of Dean street, for instance, there were no such places. He wished to know whether means were taken to enforce these provisions being carried out.

"The Town Surveyor said this part of the Act had not been carried out.

"(*The Inspector.*) Has the corporation any inspector of nuisances?

"(*The Town Surveyor.*) No.

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"The Mayor said, it was very difficult to carry the clauses which had been read into effect. They had occupied the attention of the town improvement committee, and they found extreme difficulty on the subject. For instance, there were some blocks of old property, from which very little rent was obtained, and indeed in some cases it was difficult to ascertain the names of the proprietors; and if even they erected these

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conveniences, such were the social habits of the people that a still greater nuisance would probably be created.

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"(*Mr. Wm. Newton, Surgeon,*) Why does not the corporation make water-closets in their own tenemented property?

"(*The Mayor.*) I am not aware that they have built any. They bought some tenemented property in Sandgate, for the purpose of taking it down and making public improvements.

"(*Mr. Newton.*) The whole of Sandgate is unprovided with anything of the kind, and the female part of the community have no privy at all.

"(*The Mayor.*) The corporation intend to take their property down; they have already sacrificed a considerable sum in rents for the benefit of the health of the people. They have also erected public privies in that neighbourhood.

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"Mr. Gray observed that the corporation has already full powers for ensuring the paving of new streets. He directed attention to clauses 58, 59, 60, and 68 of the Local Act of 1846, which enable the council, if a street is not properly paved, to give a month's notice to the proprietors to put it in a proper state, and if they fail to do so, then the council can do it, charging the owners with the cost in relative proportions. The corporation have power to enforce payment of these proportions out of the rents of the tenants. Every builder is directed by the Act to give notice to the surveyor of his intention to build, so that he may see the provisions of the Act are complied with, and failing to give such notice he is liable to a penalty of 5*l*. He (Mr. Gray) would like to ask Mr. Wallace, the town surveyor, how many notices he has received since the passing the Act?

"(*The Town Surveyor.*) None; I believe I may say the builders have never noticed it at all.

"(*Mr. Gray.*) Has the penalty of 5*l*. been levied?

"(*The Town Surveyor.*) Nothing of the kind has ever been done; it has been a dead letter altogether.

"Mr. Gray believed not a single street had been paved under the provisions of the Act. The surveyor was well acquainted with a number of buildings now going on in various parts of the town, and in consequence of these regulations not being carried into effect, there were even greater nuisances than in the older parts of the town. He might mention the township of Westgate, where a great many persons had gone to live in consequence of the buildings pulled down to make approaches to the High Level Bridge. The people who built these houses were anxious to get a high rate of interest for their money, and in consequence of their neglect of sanitary regulations the rates had increased, and would increase.

"(*Mr. Gibson, to the Town Surveyor*). Have you taken any notice of the smoke nuisance?

"(*Mr. Town Surveyor.*) Nothing of the kind has been done.

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"Mr. Gibson said there were powers in the Act for suppressing the smoke nuisance.

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"The Inspector said if the corporation had full power to deal with the smoke nuisance, they must have been inattentive or very lenient in their treatment of persons.

"Mr. Gibson said the council felt it was not their duty to carry out this part of the Act, seeing the town is so much interested in smoke.

"(*The Inspector.*) Then the corporation egregiously fails in its duty.

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"The Mayor said, being himself one of the local governors of the town empowered to carry out the provisions of the Act, and being also a producer of smoke to a considerable extent, he had thought it only right on his part to set an example, and he would briefly state his own experience in the matter. He placed himself in communication with various practical authorities in the kingdom, visited Leeds, Liverpool, and London, and perused most attentively the evidence produced before the Committee of the House of Commons on the subject. The bulk of that evidence seemed to be in favour of Williams' patent, and it was strongly recommended by Dr. Ure, Professor Farraday, and other great names. He opened a correspondence with the patentees, and the result was, that they sent down a person expressly to superintend the erection of the apparatus, and at his expense. When it was completed, he found it consumed the smoke, but it would not raise the steam so as to drive the machinery. This probably arose from the circumstance of a stream of atmospheric air being carried over the top of the furnace between the fire and the boiler, which is commonly the case in apparatus for consuming smoke. He wrote to the parties and told them the effect; they shuffled a good deal, but at length they said they had merely purchased the patent, and could not be answerable for its defects. So the affair ended 'in smoke,' and he was obliged to abandon the plan which, at considerable expense, he had attempted to carry out. But authorities were not even agreed as to what opaque smoke was. Parliament had on two or three occasions endeavoured to have a general bill, but on the last occasion when Mr. Mackinnon brought in a bill he was stopped in limine, as the parties could not agree on a definition of opaque smoke.

"Mr. Henry Turner referred to Manchester where the smoke was consumed, and to his

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own experience as a smoke producer. At times, from the inattention of parties feeding the fire, the smoke was more opaque than it ought to be. He considered the Act should be enforced by the council, for in this neighbourhood the mass of smoke was greater than in Manchester, since the application of the Act there for the consumption of smoke.

"(*The Inspector.*) As he had already said, smoke might be consumed, but it must be by constant attention. When he himself had charge of engine power, he increased the wages of the fireman, not weekly, but he gave a weekly increase, payable quarterly, subject to every fine that might be levied upon him for smoke. There was no more smoke after that plan was brought into operation. That steam might be got up sufficient to work an engine up to its power, according to the principles of construction at present adopted, there could be no doubt whatever—it was done daily. But the engine must not be overworked, and there must be excess of boiler room.

"Dr. Embleton said that great difficulty arose in cleansing and paving certain roads in Newcastle for this reason, it was not known exactly who are the owners of those streets, and whether it is the duty of the corporation or the surveyors of the highways of the township in which the streets are situated. Some doubt existed on the subject, and the consequence was the corporation said they had no business with the streets; the surveyors of highways, on being appealed to, declared they could not get a rate. According to the Improvement Act of 1837 the corporation has power to agree with the surveyors of highways. The inspector would have occasion to see the streets in his survey of the borough, and would be disgusted, if he could be disgusted, with the state of the public streets.

"Mr. Cooper Abbs said the application of the Health of Towns Act to the parliamentary borough would remedy the evil, by constituting the corporation surveyors of all roads within the district. The corporation could not then throw back the duty on the township surveyors.

"Dr. Embleton observed that, with their present powers, the corporation might agree with the surveyors, and the matter thus be arranged.

"(*Mr. Blackwall, a Member of the Town Council.*) Yes; but two parties must be consulted, and if a surveyor of highways declines to negociate, there is an end of the matter.

"Dr. Embleton wished to know if the corporation had made any proposal to the surveyors of highways?—No reply was given to this interrogatory.

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"(*The Inspector to the Town Surveyor.*) Do you know the extent of land to be drained by the whole of the sewers in the town?—No.

"Did you make any calculation as to the extent of drainage required before commencing to construct the main sewers?—The sewer in Grey-street was made fifteen years ago by Mr. Grainger.

"Did you ever notice whether the sewers were full, or to what extent they were filled?—We have had them filled sometimes, but they were then not above half the area they are now.

"Which of them have you had filled?—We have had them filled at the foot of Dean-street, where they blew up.

"What was the size of those which blew up?—Only about 2 feet 2 inches; they are now about 5 feet by 3 feet.

"Do you know whether it was high or low tide at the time?—The land floods caused it.

"What sewers are you now carrying out?—We are forming a long one in Northumberland-street, and we have made sewers in Pilgrim-street and Bigg-market.

"And did you make a calculation of the velocity of the water before you commenced there?—There is not a great deal of water.

"But why make them so large?—We do not consider them large.

"What will be the cost per lineal yard?—They are let at 32*s.* per yard.

"And what length have you let?—About 1,400 or 1,500 yards.

"(*The Inspector.*) It is most important that the corporation should not expend the public money unnecessarily or injudiciously. If you have not calculated what water will come down, how can you know what extent of sewerage will be required?—The probability is, that a 12-inch drain pipe would have answered the purpose, and much better than the one you are now constructing at so much expense. The space unoccupied by the drainage, in a common sewer, allowed the evaporation to escape, and is positively mischievous.

"The Town Surveyor expressed doubts of a 12-inch pipe answering the purpose for which the sewer in Northumberland-street is being constructed.

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"Mr. William Richardson drew the attention of the inspector to the state of Marlborough Crescent, and the imperfect drainage of that part of the town. Three sewers met there nearly together, and the three will contain about 42 ft. water, sectional area; these are brought into a common sewer, which will contain only about 20 ft. water. The consequence is, that the water is forced back into the kitchens of the houses in the neighbourhood, being sometimes several feet deep. It was no uncommon thing in that part of the town to see men and women standing up to their knees baling the water to prevent it flowing into their houses.

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"The Town Surveyor stated that when the inspector was in that locality, he would point out the place to him.

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"Mr. Stephens was asked by Mr. Gray if a register of the lodging-houses in the town was kept?—Mr. Stephens said by the Act of 1846 the corporation had power to make byelaws for the regulation of lodging-houses, and he believed the subject was now under their consideration.

"Dr. Robinson secretary to the Newcastle and Gateshead Sanitary Association, presented the following report from that body:—

"To Robert Rawlinson, Esq., Superintending Inspector of the General Board of Health.

"Sir,—In submitting to your notice the few following observations, the committee of the Sanitary Association trust that they will not be considered as at all desirous of intruding upon the official duties of the public bodies charged with the sanitary regulation of this borough. Their object in taking part in the present inquiry is rather to evince the existence in the public mind of a desire for the speedy application of practical remedies to evils now generally recognised, than to attempt to add to the valuable mass of information already embodied in various reports and publications. They may, however, be permitted briefly to remind the inhabitants of Newcastle of some of the benefits which may reasonably be expected to arise from the introduction of the Public Health Act into this town.

"In the first place, the monstrous anomaly constituted by the exclusion from the chief advantages of municipal government of districts in this town, containing a numerous population, will be removed by the extension of sanitary regulations to the ill-conditioned suburbs of Newcastle.

"2. It may perhaps also be assumed that as the local board of health will command the means of forthwith establishing a complete and comprehensive system of drainage for the whole of the district occupied by this town, the inhabitants will no longer feel the annoyance of being called upon to pay rates for the formation of isolated sources from which the great majority of the rate-payers derive no immediate advantage.

"3. From the peculiar position of the Town-moor, with reference to the natural drainage area of the Newcastle district, the importance of making simultaneous provision for the discharge of the water supplied from this source must be obvious; and it is therefore to be hoped that an arrangement may be entered into between the local board of health and the body of freemen, for the accomplishment of an object which must tend to raise the value of this noble property, and at the same time add to the health and comfort of the inhabitants of the town generally.

"Without entering into further particulars, it may be confidently expected that the system of improved sanitary regulations contained in this measure will, in the hands of the gentlemen selected by the town council of this borough as the local board of health, speedily remove many of those sources of disease, discomfort, and demoralization which have so long preyed on the vital energies, and impeded the moral advancement, of the labouring population of Newcastle; while the rate-payers, who have supplied the large sums required to restrain and assuage the melancholy effects of the diseases engendered by the removable physical agencies alluded to, will doubtless in a short time experience the actual economy of those improvements by means of which they will also have materially contributed to diminish the suffering, and elevate the general condition of their less fortunate fellow creatures.

"(Signed, on behalf of the committee, by)

"George Robinson, M.D., Hon. Sec.

"Newcastle-on-Tyne, 17th December 1849.

"The doctor also read the following report, signed by eleven practising physicians and surgeons:—

"*Report of the Medical Committee of the Newcastle and Gateshead Sanitary Association, communicated* A.D. 1849 *to Robert Rawlinson, Esq., Superintending Inspector of the General Board of Health, by George Robinson, M.D., Hon. Secretary of the Association.*

"In presenting a brief review of the state of the public health in Newcastle-on-Tyne during the last seven years, the Medical Committee and Sanitary Association have in the first place to express their regret that the present machinery for the registration of the causes of death does not enable them to enter so fully as they could wish into the statistics of mortality for this borough. They trust however, that in the event of the establishment of a local board of health in Newcastle, some arrangement will be made with the view of regularly publishing, in a tabular form, information as to the numbers and causes of deaths occurring in a given time, on the plan of the London bills of mortality. For they are convinced that the early publication of such information will not only be useful for medical inquiries, but will also exercise a most beneficial influence upon the health of towns, by directing immediate attention to any extraordinary causes of mortality.

"From the limited materials at their command the committee have prepared the sub-

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joined statement of the mortality in Newcastle during the period indicated by the Public Health Act as furnishing a test of the applicabilities of that measure in certain cases.

"During each of the seven years ending 31st December 1848, the deaths have been as follows:—

	Deaths.	
In 1842	1,737	
1843	1,923	
1844	1,606	
1845	1,750	
1846	2,909	(being an increase of 1,159 on the preceding year.)
1847	2,700	
1848	2,290	

"The total number of deaths recorded during this period thus amounting to 14,915, or an average annual mortality of 2,130.

"In 1841 the population of Newcastle amounted to 71,844, and assuming it to continue to increase in the same proportion, it will in 1851 amount to 93,861. Now if the mean between these two numbers, 82,852, be taken as representing the average population of the town during the last seven years, (an estimate evidently understating the rate of mortality, inasmuch as the chief increase of population generally occurs during the latter half of each decennial period,) the average annual mortality among each 1,000 of the population will be 25·70. But during the last three years it has much exceeded this proportion. Thus the deaths registered during the year 1846, calculated on a population of 82,852, represent a mortality of 35·11 among each 1,000 of the inhabitants of Newcastle, or 3½ per cent. and in the years 1847 and 1848, the deaths to each 1,000 of the population were respectively 32·58 and 27·63; whereas the average annual mortality, in the estimation of those persons who have devoted most attention to this subject, should not exceed 20 to each 1,000 of the population or 2 per cent. It may be added that the deaths registered in Newcastle during the three first quarters of the present year amount to 1,899, so that there is a tolerable certainty of 1849 equalling the average of the seven preceding years.

"This excessive mortality during the last few years has arisen solely from zymotic or epidemic, which are in fact the most preventible, diseases—scarlatina, influenza, typhus and other forms of continued fever, measles, small-pox, and cholera are the chief of this group, and the former have in turn raged with great severity in this district. For the minute statistics of the mortality arising from these visitations, we must from the cause above alluded to, beg to refer to the Registrar General, and we shall therefore in the following observations restrict ourselves:—

"1st. To the indication of the chief localities, selected by the various epidemics, and the physical causes which have apparently influenced that selection.

"2nd. To the brief consideration of the circumstances which have, as far as human knowledge can take cognizance of such events, contributed in a great measure to preserve the inhabitants of Newcastle from the pestilence which has within the last year proved so fatal in the surrounding districts, and which on its former visitation raged with equal violence in this town itself, and conclude by enumerating some of the chief removeable sources of disease which have fallen under our observation, together with a few suggestions for their future prevention.

"Dr. Reid's report contains a list of the most unhealthy districts in Newcastle prepared by the medical committee then appointed. We have on the present occasion, therefore, merely to refer to that list, as unfortunately the same places still retain their notoriety as the chief seats of epidemic disease. Thus scarlatina, which raged here with considerable malignity during the year 1846, fixed its principal seat in the newly built but densely populated and much neglected district situated between Gallowgate, Arthur's Hill, and the barracks, a district described in one of the reports of the Sanitary Association as constituting 'a new and rapidly increasing town which has within the last few years 'arisen in the north-western suburb of Newcastle, and beyond the jurisdiction of the 'corporation. These streets are mostly inhabited by labouring men and their families, 'and present in a marked degree the physical and moral evils which afflict the poor, when 'deprived of all official superintendence and protection; undrained, unpaved, they consti-'tute in winter a perfect swamp, whilst the summer's sun acting on the mass of animal 'and vegetable refuse embedded in the mire, produce the poisonous exhalations from 'which fevers originate.

"'This district is consequently the chief focus whence the epidemic of scarlatina, (which 'last year ravaged Newcastle,) spread its fatal influence, and the mortality here among 'the children was excessive.'

"To describe the seats of typhus and other forms of continued fever would be to enumerate all the narrow undrained alleys in the older parts of the town, together with many equally unhealthy, because still more neglected, districts in the suburbs. In many parts of Newcastle fever may be said to be never absent, and a continued residence in those unwholesome dwellings is certain to involve the prostration, and eventually the death, of some members of the family by fever. As an illustration of this statement, we may refer to the statistics of fever in a notorious locality, during a portion only of the epidemic of 1847, by which it appeared, that in nine rooms in Craigs-court, tenanted at

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the time of inspection, by 55 inhabitants, there had been within the three months immediately preceding our visit, no less than 50 cases of fever and five deaths. Nor was there any difficulty in discovering the physical causes which thus doomed the unfortunate inhabitants of these pest-houses to certain suffering, and the possible contingency of premature death. For being built in close contact with the earth, forming the side of a steep bank, the walls of these houses were necessarily and constantly imbued with moisture, while a large collection of every species of filth from piggeries, and heaps, &c. on the summit of the bank above, supplied a constant source of putrifying liquid to mingle with the natural drainage water, and ooze with it into the porous walls of the subjacent dwellings. It is but proper to mention that, since the period of that visit, the town council have enacted a byelaw, forbidding pigs to be kept within the town; but the other evils remain unremedied, and are unfortunately but too common in all the low-lying parts of the town. Among other fever haunts in the suburbs, we may mention as instances of its dependence on defective sanitary arrangements, the back streets of Brandling village, Byker, Buckingham-street, Peel-street, &c. We also beg to subjoin a table recently presented by Dr. Bulman to the Pathological Society of this town, which shows the number of cases of fever attended at the fever hospital and from the Newcastle dispensary, during the last 33 years.

"*A Table showing the Total Number of Cases of Fever treated in the Newcastle Fever Hospital, and by the Officers of the Newcastle Dispensary, in each of the last* 33 *years.*

Years.	Cases.	Deaths.
In 1816	192	15
1817	434	22
1818	540	27
1819	116	9
1820	68	5
1821	95	4
1822	203	9
1823	45	4
1824	225	5
1825	317	22
1826	358	17
1827	252	5
1828	234	15
1829	123	6
1830	135	3
1831	632	22
1832	167	5
1833	206	10
1834	389	12
1835	327	13
1836	234	14
1837	605	44
1838	524	37
1839	657	45
1840	541	28
1841	498	24
1842	530	24
1843	555	17
1844	264	14
1845	286	17
1846	486	33
1847	1,179	91
1848	271	22

"The comparative exemption of Newcastle from the late visitation of cholera, while a natural source of congratulation and gratitude to the inhabitants, is, we think, as far as we are enabled to penetrate into the mystery of the irregular course followed by this epidemic, to be taken as a remarkable instance of the efficacy of even the slight and partial measures yet adopted for the sanitary improvement of the town, and as a strong ground of encouragement for the further prosecution of that improvement. For we are led to consider as the chief human agencies which have tended to this fortunate result:—

"1. The general cleansing effected during the prevalence of the various epidemics with which this town has of late years been visited, and by which enormous masses of decomposing refuse, the accumulations of years, were removed from many of the most densely populated districts.

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"2. The introduction of an increased supply of pure water on such terms and mechanical arrangements as to render it generally accessible to the poor.

"3. The establishment of a system of exportation of town refuse for agricultural purposes, by which a temptation to accumulate ashes and night soil for the benefit of the landlord has ceased to operate in the same degree among the owners of the inferior classes of dwellings.

"The comparatively few cases of malignant cholera which have occurred in Newcastle supply, we think amply sufficient evidence both of the invariable dependence of attacks of this epidemic on certain predisposing physical causes, and also of the necessity for continued vigilance on the part of the authorities, lest this fearful disease in the event of a second (third?) visitation, by no means an uncommon accident in its erratic course, should exercise a more destructive influence upon the inhabitants of Newcastle. The cases in question seem chiefly to have occurred in three localities, viz., in the ill-regulated streets behind Marlborough-crescent in Byker, Jesmond-vale, and other districts in the neighbourhood of the Ouseburn, and at St. Peters, all of which are, with trifling exceptions, beyond the sanitary jurisdiction of the town council.

"The outbreak of cholera in the neighbourhood of Marlborough Crescent, which occurred last summer, is, by the inhabitants, and we think justly, referred to the liability of that district to occasional inundations from its defective sewerage. We are told that during a heavy thunder-storm, on the 8th of August last, the ground floors of several houses were filled with filth from the common sewers, that women might be seen standing up to their knees in water raking out the gratings, while their furniture was swimming about their kitchens; that within a fortnight or three weeks of that time, two persons died from cholera in the house next to that occupied by one of the women alluded to, and that within fifty yards of the same spot there were nine deaths from cholera within the same short space of time.

"Mr. C. J. Gibb, in communicating on the 15th January last to the Pathological Society of this town, the history of eleven cases of malignant cholera, which he had recently attended in the eastern district of Newcastle, stated that 'the locality in which the cases 'appeared were in accordance with the known dispositions of the disease to follow the 'course of streams, and be most virulent in damp situations; they all appeared along 'the banks of the Ouseburn stream, and in one yard, where six out of seven cases 'proved fatal, there was an open drain and well within it, and on one side of it a bank 'from which fluids drained away at all times through the walls of some of the lower 'rooms, or into the yard itself.' And at St. Peter's, a cluster of streets inhabited by shipwrights and other operatives, and situated on a creek about two miles below the town, the connexion between the sudden and fatal visitation of cholera and its usual physical antecedent was equally apparent.

"In concluding this brief review of the more important incidents in the recent sanitary history of Newcastle, we beg to direct attention to the following, as some of the chief preventible causes of the excessive mortality lately experienced in this town, viz.:

"1. The absence of any covered drains in many of the public streets, and in nearly all those narrow entries, courts, and alleys which contain a very large proportion of the poorer population.

"2. The unpaved, uncleansed, and consequently filthy and repulsive state of many of the streets, particularly those recently erected in the suburbs, where whole districts are to be found in this neglected condition.

"3. The overcrowded, ill-ventilated, and ill-arranged dwellings occupied by the mass of the labouring population as tenements and lodging-houses.

"4. The practice of building houses in many of the lower parts of the town at the foot of steep declivities in such a manner that the back walls are in close contact with the superincumbent earth, the drainage from which necessarily percolates into the subjacent rooms, carrying with it any organic matters which may have been held in solution.

"5. The frequent accumulation of masses of decomposing refuse and other offensive matters, which, though much mitigated, still continues to exist in an unnecessary degree, and can only be effectually suppressed by constant vigilance on the part of the authorities.

"Among other remedies which we should desire to see applied to the removal of these morbific causes may be mentioned—

"1. The effective drainage and general paving and cleansing, not only of the great thoroughfares, but also of the crowded alleys and courts, as provided in the Public Health Act.

"2. The registration and sanitary regulation of lodging-houses and slaughter-houses, and the improvement of cellar dwellings indicated in the same manner.

"3. The erection of such a number of private or public necessaries as may secure the higher classes of inhabitants from the present disgusting nuisances, and at the same time preserve for the poor those feelings of self-respect and decency in which it is now impossible for them to indulge.

"We may lastly express a hope that the wealthier inhabitants of Newcastle will, ere long, take some steps for providing suitable dwellings for the working classes on the plan of those erected by the London Association, formed for the express purpose of carrying out that benevolent object. The necessity for some such provision for the

numerous families ejected in consequence of the various improvements recently effected in the central parts of the town, becomes every year more urgent, and we cannot but entertain a confident conviction, that a plan fraught with such immediate and practical benefit to the industrious classes, which fosters the self-respect of the tenant, while it supplies every want of a working man's home, which has been honoured by the advocacy of royalty and by the support of many of the most distinguished men of the day, and which, above all, occupies firm ground as a pecuniary investment, will, at no distant period, also engage the attention of the influential inhabitants of Newcastle, and receive additional development through their agency.

R. Rawlinson, Esq. C.E.

19th Jan. 1854.

(Signed) " Darnell Bulman, M.D.
" David Blair White, M.D.
" Robert M. Glover, M.D.
" T. M. Greenhow, F.R.C.S.
" William Dawson, M.D.
" Charles J. Gibb, M.R.C.S.E.
" George Robinson, M.D., Sec.
" Edward Charlton, M.D.
" G. Yeoman Heath, M.B.
" Thomas Humble, M.D.
" John Cargill, M.D."

" *Mr. Henry Turner,* in allusion to one part of the report, said the gentlemen were in error in supposing the places mentioned were not under the regulation of the corporation. The Improvement Act applies to the whole of the Parliamentary borough.

" *Dr. Robinson* said he had looked carefully on a map prepared under the superintendence of the town surveyor, and certainly many parts were beyond the municipal boundary.

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" *Wednesday, December 19th*, 1849.

" The Vicar of Newcastle (the Rev. R. C. Coxe, A.M.,) attended and stated that he should be happy to promote, by every means in his power, the object of the present inquiry.

" *The Inspector.* In what condition are the church-yards generally ?

" (*The Vicar.* They are too full, except in one or two new districts, and it is very expedient we should be relieved as much as possible from intramural interment. He had occasion, during the prevalence of the late epidemic cholera, to exert all the influence he possessed, and to proceed so far as to threaten to call in the assistance of the Secretary of State, simply to stimulate the Board of Guardians. They acceded to his wishes, when thus strongly expressed. He believed he expressed the opinions of the clergy collectively, when he said they are most anxious that the churchyards should be closed, especially on the occurrence of such a visitation. It would be necessary to reserve one or two rights, such as where there was a family vault and room for one or two more bodies; but these details could only be entered upon when a general scheme was marked out. Another point was, the question of compensation to the incumbent clergy. He was perhaps the best person to speak on this point, because he was not generally interested in it.

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" (*The Inspector.*) Have you visited, in your clerical capacity, the poorer classes, and what opinion have you formed of their state and of remedial measures ?—I dare say more might be done than has been done, but it must be by a co-operation of landlords, tenants, and public bodies. My feelings have frequently been shocked beyond measure by the state of the dwellings in which many of the poor people reside. On account of the peculiar form of the locality in this town, there is a rapid bank from the castle, and many houses are so built that the doors are reached by a steep ascent; on one side they are packed up to the roof by the earth, and the drainage gets through the walls. It would be very difficult indeed to remedy the evils which such a formation gives rise to; and yet the fall is so great that, by an efficient system of deep drainage, it all might be taken away.

" (*The Inspector.*) You see neither landlords nor occupants will of themselves pay the requisite attention to these matters; there must be a regulating power above either of them. But the principal question I shed to ask you is, have you visited the low lodging-houses ?

" (*The Vicar.*) Yes, very often; where there are seven or eight beds in a room, such places are the nurseries of crime, and it is hopeless to expect moral improvement so long as these exist. The poor creatures have been so long surrounded by misery and disease that they have become quite callous to it."

Extracts from a Report to the Commissioners of the Board of Health on the Sanitary Condition of Newcastle-on-Tyne, made by Carleton Baynes, C.E., in September 1848, *and by George Robinson, M.D. of Newcastle-upon-Tyne put in as evidence before Superintending Inspector Rawlinson at his Inquiry, December* 1849, *as also before the Cholera Inquiry Commissioners, January* 1854.

Vide Q. 4316 *post.*

" To the Chairman of the Commissioners of the Board of Health.

" My Lord, " Newcastle-on-Tyne, September 1848.

" Having, in the course of the last three weeks, carefully examined into the present state of Newcastle-upon-Tyne, with respect to its sanitary condition, and having made

Extracts from a Report on the Sanitary Condition of Newcastle upon-Tyne, by Carleton Baynes, Esq., C.E. Sept. 1884.

the most minute inquiries concerning each portion of it, particularly as regards sewerage, cleansing, and water-supply, I beg leave to submit for your perusal some of the facts which presented themselves during the course of my investigations, feeling sure, that under the various existing circumstances, such a report cannot fail to claim your careful attention, both from the fact that public opinion is at last awakening to the vital importance of improving the sanitary condition of the working classes in our large manufacturing towns, and more especially that many of the inhabitants of this town are preparing to petition your Honourable Board, to have "The Public Health Act" brought into operation in this very populous district. There are very few towns in this country which possess greater natural advantages for surface drainage than Newcastle-upon-Tyne, and this is probably the main cause for the sewerage of the town being of so partial a character. The continuance of heavy rain for a short time completely cleanses, with few exceptions, all the streets that are paved, even the most filthy of them; and in the unpaved streets, although the roadways become almost impassable from the depth of wet clay, yet the foul organic refuse, which was previously strewed about, is thereby washed off and carried to some lower district, whence it escapes, sometimes into the river, but too frequently only to some open space, where it is allowed to stagnate and corrupt the air. The rain also benefits the inhabitants of small courts, for the heaps of refuse in them which before the rain gave off the most noxious odours, become for a time harmless, as the water soaking through the heap absorbs and carries off the poisonous gas. As an example of this:—On the 21st of August, while making inquiries of the tenants in Meeting-house-court, Silver-street, I found the smell, arising from a large heap of refuse, which choked up the yard, and from the pools of filth, which formed themselves in the unpaved gutter, extremely nauseous and almost overpowering; but when I revisited this court on the 23rd, after the heavy rain of the preceding day there was hardly any smell from the heap, and the pools of filth were washed away.

"In Doctor Reid's Report on the Sanitary Condition of Newcastle-upon-Tyne, 1845, (pages 70, 71), there is a full account of the physical and geological character of this district, and therefore it is needless for me to speak further on these points, and I proceed at once to my own observations, and enumerate what I consider to be the several advantages and disadvantages to a good sanitary state which this town possesses; to describe their effects as shown by the habits of the inhabitants, and the general appearance of their dwellings; and lastly, to state what means might be adopted to preserve the town from the sickness which is daily liable to be generated in some parts of it, to improve the condition of the middling classes, and to place the enjoyment of health and cleanliness within the reach of the lower orders, which cannot be until they are supplied with pure air and wholesome water.

"The red lines on the accompanying plan indicate all the sewers at present existing in Newcastle. As many of them have been constructed since Doctor Reid's Report, several of the particular evils to which he there alluded are now entirely remedied,—for example, the sewer running under the Side has been re-constructed, and the common sewers at Forth-bank and Green-court have been covered in; but the Pandon-dean still remains "little better than an open sewer," and the general systematic evils which he there speaks of still continue to injure the sanitary condition of the whole town; "there are no local regulations in force for the systematic drainage of the district streets or houses." The builders of new streets and rows of houses have been allowed, up to the present moment, to provide for the sewerage of the new buildings as they thought fit, the consequence of which is, that where sewers have been constructed at all, they have been made with regard only to the least possible expense and trouble; for when the street is paved it is delivered over, with its sewer, to the charge of the corporation, who often expend nearly as much in repair of such sewers as it would have cost to build them: but I am informed by Mr. Wallace, the town surveyor, that this practice is to be no longer allowed, and that, for the future, he is ordered to superintend the building of all new sewers within the jurisdiction of the town council. This jurisdiction is shown on the plan by a dotted red line, and it is only within this line that there is, at present, the smallest hope of any good good system of sewerage or scavenging being established.

"The sewerage of this town has been considerably extended since Doctor Reid's Report, and in each year progressing more rapidly. Thus, in

1845,	the number of new sewers built was	4,	and the number, more or less, repaired was	1.
1846,	"	"	4,	"	"	9.
1847,	"	"	9,	"	"	5.
1848,	"	"	8,	"	"	2.

and several of these were works of considerable extent. Still the laying out of sewers has not as yet met with the consideration it demands; there is no map, to any sufficient scale, of the existing sewers, their falls are not registered, nor are their levels in any point determined. Most of the main sewers have a flagged top and bottom with sides of coursed rubble, about 5 feet by 3 feet in the clear, and as they have often a fall of 1 in 12 there is not much fear of stoppages.

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"They were all drifted, as the depth at which they were laid was considerable. The house drains are, usually rectangular, 12 inches by 9—12 inches in the clear, built of brick and old flag-stones, often laid dry; they constantly get choked up, and cause often

Extracts from a Report on the Sanitary Condition of Newcastle-upon-Tyne, by Carleton Baynes, Esq., C.E. Sept. 1848.

considerable expense in repairs. During the last two years, sewers have been built of a much better form.

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"There is no provision made for flushing any of the sewers, and when they get stopped up, they are invariably broken into from the surface. On reference to the plan, it will be seen that the greater part of the town is well provided with main sewers, but the large majority of them are only used as street drains, and have rarely a single house drain running into them; thus nearly all the drainage of Newcastle has to be thrown into the street before it can get to the sewer, and where there is no sewer, the only means of drainage is evaporation, for the stiff yellow clay which forms the surface of almost the whole of this district, as it allows the rain to have its full cleansing power, so cuts off that source of natural drainage which a gravelly soil affords; and thus the want of sewerage and house drainage are rendered more apparent by the excessive dampness of ground-floor rooms, and the length of unpaved gutters. In the lower parts of the town the want of sewerage is but too apparent for many streets and alleys become themselves little better than open sewers, often receiving the refuse from tripe-washing and other shops, which renders them very disgusting; also not unfrequently the refuse water of one court runs into another lower down the hill before it reaches the street. Hence a spring-well in Sandgate, which eighteen years ago, supplied the whole neighbourhood with the best drinking water, is now so black, and the smell from it so foul, that it is perfectly useless. In the same district, an entry received the refuse water from a brewery which caused a constant current through the passage, sometimes flooding the lower house; the tenants however, considered their condition improved by it, and I believe they were right. Not far from this the waste leys of a soap factory so saturated the bank on which it stood, that the ground-floor rooms of the houses below were kept constantly wet; and in the best parts of the town, the want of sewerage is sometimes rendered equally evident, by the main streets being strewed in the middle of the day with sewage and ashes dropped from the carts employed to carry this refuse to the railway station, whence large quanties are often sent by rail to the country. There are thirteen public necessaries in the town, eight of them empty themselves into the river, one into an ash-pit, which is cleaned when full, and four into sewers, and three of these can be occasionally flushed. But there are no necessaries for the use of women in any part of the town, excepting in the new market.

"Up to the year 1846, the corporation contracted for the scavenging of Newcastle, at an expense of 1,620*l.* a year; but since that date, they have taken the matter into their own hands and have greatly increased their establishment, and consequent yearly expenditure, which now exceeds 2,026*l.* Of those streets which are within the town boundary—

16	are swept	6 times a week.
33		3 ,,
35		2 ,,
37	,,	once a week,

and the remaining seven are swept occasionally. Thus nearly all the thoroughfares are swept at least once a week, but those courts and entries which are not thoroughfares are totally neglected, and neither the proprietors nor occupiers are bound to clean them.

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"Carts go through the town every morning to collect the ashes and other refuse from the houses, which, however, must first be placed by the tenants themselves in boxes in the street, for the scavengers are not ordered to fetch dust from any of the courts adjoining the street; and this is a cause of great nuisance in those confined places, the ashes and filth being often thrown aside there in heaps. Several of the streets being macadamized, a number of men are employed as road scrapers, and the scrapings are removed by proper muck-carts. All the main streets are well watered during the summer months.

"It is also found necessary to employ a number of men, to go through the large thoroughfares early every morning to sweep up the soil, which has been thrown from the houses during the night, either sweeping it into heaps for the scavengers, or washing it down the nearest gully-drain; on Sunday mornings they must of course do the latter. The scavengers convey all refuse to the corporation middens in the outskirts of the town, whence it is carted by farmers—but from the East Ballast hills, it is removed in barges. This midden is at present very objectionable to the houses round it from its containing so large a proportion of night soil, but if the town were provided with proper sewerage, and the custom of mixing soil with the ashes, consequently abandoned, this midden under the present regulations could not be in the slightest degree deleterious. The more important parts of the town are kept comparatively clean and healthy, as far as scavenging is concerned, but the inferior districts are generally much neglected, there being no check on the scavengers properly performing their duties. The scavengers, in sweeping the narrow entries leading from street to street in this district, which they seldom do more than once a week, confine themselves to the narrow beaten track, which of course requires cleansing the least, and they refuse, when asked by the tenants, to sweep any of the various recesses which are almost always covered with soil, ashes and other sorts of filth. In one very narrow entry (Hunter's-entry) the new tenant of a ground-floor room, where filth had accumulated, in cleaning it out, had thrown the filth into the paved passage. When I saw this heap it had been there several days, the scavengers had refused to remove it,

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saying it was the landlord's business, and he had been applied to without effect; a girl was endeavouring to sweep it up into a smaller heap, but, from the fluid state of the filth and the great fall of the passage it was a hopeless task. The majority of necessaries belonging to houses in this town, empty themselves into private ash-pits, and consequently afford employment to a number of nightmen. The police regulations forbid the emptying of these ash-pits during the day, but, as in very many cases the filth has to be carried through the house, and as in cases of necessaries common to a number of families, the accumulations are often greater than can well be moved in one night, these regulations are not strictly enforced in any but the main thoroughfares. Last year, when fever was raging in the town, the corporation ordered many of these accumulations to be removed, and in one case ninety-five loads were removed from one of these heaps. They also forbid the keeping of pigs in crowded localities, but since that time things have been allowed to go on as before, and are now nearly as bad as they ever could have been, excepting as regards the keeping of pigs.

"The system of water supply at present existing in Newcastle is intermittent, and exceedingly defective, but probably in a few days it will be entirely superseded by a constant supply of good water from the reservoirs which have been lately constructed at Whittle Dean, about 12½ miles west of the town. The country in the vicinity of Newcastle has been so completely undermined by coal workings, that it is impossible to obtain any certain supply of either spring-well or surface water in it. In and about the town, however, water can be obtained to a limited extent by digging through the first stratum of clay, which seldom exceeds from four to six feet in depth, to the natural reservoirs in the bed of sand and gravel which generally separates the upper and lower clay strata, but the water is hard and unfit for general use, as will appear from the analysis, given in the latter part of this report, of the various waters of the district.

"The town is at present supplied by a company which conveys its water to many of the houses of Newcastle and Gateshead, as well as to seven water cocks in the poorer parts of Newcastle, where it is sold at a farthing a skeel (four gallons); and partly by the corporation from eighteen public pants (or fountains situated in various parts of the town. These pants were originally supplied by various spring wells, four of them being from the overflow of an old colliery, which ran into the side of a hill, but as these resources were rendered more and more uncertain and inefficient by the various sinkings made in parts of the town, the corporation were first compelled to adopt the intermittent system of supply, and latterly, as some of them have failed altogether, they have taken water from the company for the supply of seven of their pants.

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"Rain water is very rarely collected in the lower parts of the town, as it is usually so loaded with soot as to be perfectly black, and unfit for use, besides which the tenants are generally too poor to purchase the necessary tanks, and in most cases they have not sufficient space to fix them if procured. The one or two families who do use this water are obliged to allow the rain to fall for some time before they begin to collect it, and eve n then it is seldom fit for washing linen. Three or four of the tenants of ground-floor rooms (on the north side of Sandgate,) have small holes in the corner of their rooms, from twelve to thirty inches in depth, which act as wells and supply several gallons in the course of the day. The tenants seldom drink this water, and it is too hard for general use, yet it is highly prized as furnishing a means of cleanliness, and is much sought after by the neighbours, which shows the anxiety of the poor to procure a proper supply by the high value they set on such an indifferent resource as these holes afford. Many of the courts in the higher parts of the town have pumps for the use of the tenants, but this water is exceedingly hard, as shown in the analysis.

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"In tenemented property the landlord pays the water rate, and he often exacts from his tenants double the sum which he pays, and it is almost impossible for the water company to prevent this, except by dealing with this class of tenants themselves. Also at the present moment, there are numbers of such tenants most anxious to get water at any price, but until all the other tenants of their respective courts can agree to pay the same the landlord will not apply to have the water laid on—and in one court the water-cock had been removed on the application of the landlord because some of the tenants neglected to pay the rent; thus three families were deprived of the water supply, which they had fully appreciated and for which they had regularly paid. These facts show the necessity of some local regulations for the water supply of all tenemented property, and houses below a certain rental.

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"An important sanitary improvement is now being made in this district by the establishment of some baths and wash-houses close to one of the worst parts of the town. This establishment is small, but if it is found to answer more will be erected, and in other ocalities; it is built on the plan of those in Glasshouse square, London, and as it was especially constructed for this purpose by the corporation, the arrangements are in some respects superior. It contains a plunge bath 16 feet by 26 feet—twelve warm baths an thirty wash tubs, with a good drying room.

Having now given what I consider to be the several advantages and disadvantages to a good sanitary condition which this town possesses, by describing its sewerage,

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scavenging and water supply, &c., I shall now proceed to describe their effects as shown by the habits of the inhabitants and the general appearance of their dwellings. In this, as in nearly all similar towns, the higher classes live in the more airy suburbs, which are here situated to the north of the town. It is unnecessary to refer to such districts as these in this report, as they are of course supplied with water, and though in many cases with very deficient sewerage, they can always find the means to obviate these defects, and make their dwellings healthy and pleasant.

"The wealthy inhabitants of the town, and the shopkeepers in the principal streets which have been lately built by Mr. Grainger, (that district about the market) are all provided with one or two water-closets in their houses, and with good house drains running into the common sewers; but many of the first-class shopkeepers in the older streets reside in the suburbs to the east and west of the town (Banks of Pandon Dean and Westgate-hill), and these houses have no sewerage. They have generally a necessary, which empties itself into the ash-pit, and all the refuse water has to find its way either to the street, or back-lane. In one part of Westgate-hill the houses have drains running under the footpath into the side channel of the road, which is a large open gutter, constantly charged with foul organic matter, and emitting the most fetid odours. These situations, however, have the advantage of being very airy, but still one is often surprised and offended by such very foul smells arising among houses of such a respectable character. The shopkeepers in the lower parts of the town generally live there, and have to endure all the noxious exhalations of the courts and alleys in their rear. They usually have a supply of water, but frequently no necessary of any description. By far the largest class, however, of the population of this town, are foremen and operatives in the factories and collieries of the town.

"These men earn from 15*s.* to 30*s.* and 2*l.* a week; and are an exceedingly intelligent and respectable class, the majority of whom appear to be very sensible of the unhealthy state of their dwellings, from the want of a good system of sewerage, scavenging and water supply. A proper feeling on this subject has, I believe, been greatly increased by a sanitary association formed in the spring of 1847, and supported by many of the principal gentlemen of Newcastle and Gateshead, to effect, if possible, some sanitary reformation among the inhabitants of these two towns. For this purpose they have established a reading-room for the working classes (at 6*d.* per quarter), and have endeavoured, by every available means to impress upon them the injurious influence exercised upon their health and moral condition by bad ventilation, deficient exercise, and the neglect of cleanliness in their persons, houses, and workshops. This class inhabit the whole of the town and its suburbs, with the exception of those parts before described, the factories themselves, the Close and the Old Quay, which generally consist of warehouses and merchants' offices, and those very low parts above the New Quay and river side which are inhabited by men employed on the river, and will therefore be described hereafter. The superior part live in the suburbs east and west of the town, (about Blenheim-street, Spring-gardens, Gibson-street, and Shield-street); these districts have no sewerage whatever, they are supplied with water by the company, excepting in some of the westerly parts, where the elevation is greater than that of the present reservoirs; these houses are all provided with small back yards, containing a necessary and ash-pit, and an alley generally runs behind them for removing the dust and sewage. These ash-pits are seldom emptied until they become so full as to be a general nuisance; they are never sunk into the ground, but consist simply of an enclosed space, one of the sides being the wall of the back alley—hence you may sometimes see the sewage oozing through the wall into the unpaved alley, which is often saturated with filth and exceedingly unwholesome to the neighbourhood, especially where it runs between two lines of back yards.

"The back yards in this, as in most of the other districts, are often so small (sometimes less than 60 feet in area, including the space occupied by a necessary, ash-pit, and often a coal cellar); that the smell from the necessary comes into the house, and when any one of them is being emptied this smell is intolerable. In some cases these rows of houses are built back to back, forming a yard in the middle, often not more than 100 feet in area; they contain a dust-pit receiving the sewage of one or two necessaries, and a sink in the centre of most of them, but these sinks are so easily stopped up that the inhabitants prefer throwing their refuse water into the streets. The back alleys also are so narrow, (averaging 4 ft., 3 ft., and even 2 ft. 9 in. in width) that the difficulty and consequent expense of removing the sewage is very considerable; and some of these very respectable rows of houses have no back alleys at all, and the sewage has to be conveyed through the house itself. The streets have paved footways, but with one or two exceptions the roadways are neither paved nor macadamized, and the natural clay soil is cut by the traffic into deep holes, some of them exceeding two feet (measured) in depth below the general level of the road; the refuse water thrown into the street accumulates in these places, and the road becomes as bad for the public health as it is for the traffic. The general appearance of these districts forms a striking contrast to the character of the houses. Nuisances of all kinds are constantly being committed in the open streets, and no notice whatever taken of it, and many of the bye alleys appeared to be used as common necessaries. It is, however, to be remembered that the western half of the above districts, which is the half most alluded to, is beyond the

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jurisdiction of the corporation. The lower class of these workmen live in the back streets, courts, and alleys around the factories and workshops in which they are employed.

"These places are of various descriptions; some of them are unfit for human beings to live in, and all of them are very inferior to what they should be as regards their sanitary condition. A few of them have back yards with a necessary and ash-pit in them, but they are even worse conditioned than those above mentioned.

"There is also a respectable district in the south-west of the town, and there is always an ash-pit and, perhaps, one or two necessaries common to two or three of these houses, and they are cleaned out sometimes by the landlord, sometimes by the tenants. All the houses are supplied with water, some by the company and the rest from pumps.

"There are several pieces of waste ground about here, and these are invariably traversed by gutters of filthy water finding its way to some lower level; and you may also occasionally find a sort of open cesspool which has formed itself behind some of these rows of excellent houses. In this district very decently dressed children, of both sexes, are in the habit of committing nuisances of both kinds without the slightest regard to time or place. The Gallowgate district, in the upper part of the town, is occupied by men of this operative class; they are generally freemen of the town, who, among other local privileges, have the right of grazing two cows on the Town-moor and Castle-leazes. These have generally a necessary and ash-pit common to two or three houses. Their supply of water is principally from pumps and the public pant. The courts in this district appear much more filthy than similar ones in other parts of the town from the circumstance of their being generally used as cow byers, but they are in fact very much more healthy, for the refuse of the cow-houses accumulates so rapidly that it obliges the middens to be emptied very frequently, and consequently the more noxious refuse from the privy is not allowed to remain and decompose as it is in other courts. The general appearance of the district is very filthy, for the drainage from these cow-yards generally runs through the houses under the footway into the irregular side-channels of the main street, to find its way to the nearest gully drain. Some of these courts, where cows are not kept, are in a most disgraceful state, soil lying in heaps all about them. In one court (Hall's-court) the necessary and ash-pit were both full and useless. The filth of this place can hardly be imagined, and the stench from it, together with that from a tripe-shop adjoining, was nearly sickening, and the inhabitants told me that it often acted on them like purging medicine. The eastern suburbs, about the Ballast-hills, have no sewerage of any kind and very little water, except what they can carry up from the river. Very few of these houses have a privy; the men generally use those at the factories, or the public necessaries, and the women have soil pans which they use in their rooms, and empty at night on the waste space in front of their houses, the ashes and other refuse are thrown in the same place, and the whole is trodden down together, and, as far as I can learn, never removed unless it suits some farmer to come and take it, which from the locality is unlikely. All the refuse water is thrown out on the waste to evaporate. The effect of this state of things is very perceptible in the want of cleanliness of the inhabitants, the filthy state of the thoroughfares, and the little respect paid to decency, not only by children but by boys and girls of all ages. There is a crowded grave-yard in this locality, but they say it is only in very close still weather that any smell is perceptible from it. The health of this district is entirely due to its elevated position, and the breezes which constantly blow over it. The dwellings of the rest of these workmen are all in the back streets of the town and in the courts and alleys leading off them. The better class have a necessary and ash-pit common to two or three houses, some of these are emptied by the landlord as soon as they are full, and some are cleaned regularly by the tenants, but others only at intervals of four to six months, and in the large majority of cases this matter is shamefully neglected. In one instance (Creighton-court), the necessary of the adjoining court stood against the wall of one of the houses, and the liquid sewage often oozed into the ground-floor room of it in which a family were living. The necessary and ash-pit, in the court itself, was in a foul state and a family were living in the room over it. The courts of this class are kept clean but the ash-pits often get very foul, and the courts become unhealthy; and it is not uncommon to find families living in a room directly over a necessary and ash-pit, with the exhalations from the latter issuing from a point within two or three feet of the window of the room. Others have a single ash-pit and necessary for all the tenants. These courts are often unpaved and without a sink for the refuse water which runs in a gutter to the street, often forming in its course large pools which collect the organic matter of the slops, to putrify and contaminate the air. The ash-pits often get so filled up that the necessaries become useless, and the tenants being unable to agree about the removing of the sewage, &c., continue to pile soil and ashes in the court itself, while the children make a privy of the whole place. There are numerous examples of this at present in the town, where the filth has been accumulating since the general cleansing of last year; and when these neglected middens are emptied, there is generally about two feet depth of sewage at the bottom which is too liquid to be shovelled out, and is consequently left there. I saw one of these ash-pits emptied (Dyer's-court), where the liquid sewage left in the pit exceeded two feet in depth, and bubbles of gas were continually escaping from it. The tenants of many of these courts have found their ash-pits and necessaries to be so great a nuisance that they have had them destroyed, and now empty their

Extracts from a Report on the Sanitary Condition of Newcastle-upon-Tyne, by Carleton Baynes, Esq., C.E., Sept. 1848.

soil-pans at the street grating, or mix the soil and ashes together to be removed by the dust-carts, and thus the inhabitants and shopkeepers of the adjoining streets are offended during the night by the most noxious smells from the soil emptied under their windows. In one case (Rose and Crown back yard) the ash-pit and necessary caused so much sickness in the court that the priest interfered, and the landlord had them destroyed. The remaining courts have neither privies nor ash-pits, and some of them are quite unfit for human beings to live in. In some of them, especially those which are not thoroughfares, the tenants invariably take all their soil, ashes, and slops to the street, and keep their court neat and clean and often white-washed; but unless all the tenants can agree to take this trouble none of them will do so, and the consequence is that the soil-pans are in some cases emptied from the windows into the court, which being covered with ashes and refuse of all sorts, in hot weather gives off a stench which produces nausea, and sometimes diarrhœa. Many of such courts and entries as these are occupied by the lower class of operatives before mentioned, but as they are no better than those about the Quay side, I shall speak of them all together. The watermen and Quay labourers who live in this district, though they generally earn as much as the factory labourers, (viz., 15*s.* to 18*s.* a week); yet the nature of their employment renders them a less respectable class than those who are in constant and regular work. Those, however, who have seen what foul, dark, and crowded hovels are the homes in which these men are obliged to live, can only wonder that their health and morals are preserved as well as they are. These districts are at present very much crowded from two causes: first, when the railway company swept away all the worst entries in the west of the town, the tenants had to find shelter in these previously overcrowded places, and secondly, large numbers of Irish have lately come here for work during the harvest. The rent and filth have therefore proportionably increased.

"There is a large block of this class of houses which has been lately purchased by the corporation for the erection of warehouses, and plans for the future buildings are now being considered, but no dwellings are as yet being prepared for the present inhabitants, and if they are evicted before some such arrangements are made, the rest of the district will necessarily become even more crowded and unhealthy than it is. Nothing can be more demoralizing than the habits of the people living in these districts. The men avoid their homes as much as possible, and their wives and families become callous to the offensive atmosphere in which they live. The blind alleys in these parts are rendered almost impassable from the nuisances committed in them, and where there is a waste retired space of ground in any of these entries, it is used as a privy by men, women, and children. Almost all the women, however, use soil-pans, which they empty at night at the street grating or into the river, or else they mix the soil and ashes, and then leave them for the dust-carts. The people in the street offer so much molestation to any one emptying soil-pans, unless it be very late at night, that in several cases women have had to watch till a policeman was passing, or to sit up till past midnight to enable them to do it. Hence in many cases these pans are kept for two days in a room averaging about 10 feet by 12 feet in area, and where from 5 to 14 people are living; and in others they are habitually emptied into the entry, or any alley or waste space near it. Here you may often see an untenanted ground-floor room used as a receptacle for all kinds of filth, while the upper rooms are fully occupied. In one instance (Eddy's Entry) a cobbler worked and lived in a room over one of these receptacles; a large portion of the floor of his room was rotted away, and some days before I visited this room, his wife had fallen through into the filth below; some old boards were then laid loosely across the broken part. The smell in this room was insufferable, so much so that it was complained of by a woman in the next entry, which was only a trifle better itself. This man was just resuming his work after an illness of more than two months. While I was in this entry I saw a pan of night-soil emptied from a window into the passage, and to show how completely the children are inured to filth, there were three or four of them, at the mouth of the entry, dabbling in the horrid stream as it ran to the street.

"The majority of these entries having no supply of water, the inhabitants fetch all the water they use from the nearest pant, which is often a distance of a quarter of a mile, and perhaps up a long flight of steps.

"The waste of time which is caused at these pants, and the scenes which often occur there, cannot fail to be highly demoralizing. There are but few slaughter-houses in the lower parts of the town, and these are only butchers' shops where they kill a sheep occasionally. In the higher parts, however, there are several, and in very crowded localities, without any sewerage, and often without any supply of water; they generally throw their refuse into the common ash-pit, but they cleanse it out every week. Some of these places, however, are very offensive, especially in Coombes' Yard, in and adjoining which was a tripe-shop, a knacker's yard, a slaughter-house, and a tannery. There are, however, several tripe-shops, small tallow-boilers, and other offensive trades, in the lower and more crowded localities.

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"It must take time to eradicate habits which have grown up with many of these people from their earliest infancy, but there is ample proof that if they had a good

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at a moderate rate, they would in a short time fully appreciate these advantages, and take a pride as well as a pleasure in keeping themselves, their children, and their houses, as clean as they now are dirty.

"I cannot agree with the statement in Doctor Reid's report (page 89) in speaking of the lowest class of houses and their inhabitants: 'If such places exist not, they will make 'them; place them in airy habitations, they will turn them into noisome hovels. If they 'have drains, they will allow them to become obstructed; if free ventilation, they will 'close it up, if the clearest sunshine, they will shut it out by negligence and filth.' The places referred to as affording 'ample proof' of these assertions have never yet been placed in the position to give any evidence of the kind—they do, however, afford striking proofs that the desire of the tenants individually is to struggle against the disadvantages under which they labour. In these very places are courts where the sinks are so defective that the tenants prevent each other from throwing any solid matter down them, and others where they take all their slops to the street, and the sink is not used at all, lest it should become a nuisance. And many of the entries are so narrow that they never can have either free ventilation or any sunshine at all.

"Some of the worst of these entries, which Doctor Reid mentions as such, have lately been supplied with water, and this alone has so improved their condition and appearance, that it could not fail to be remarked at first sight.

"The majority of the inhabitants appear to be deeply sensible of the unwholesome state in which they are living, and it is impossible to deny that in very many cases they have but little power to improve their own condition.

"It appears, therefore, to be the imperative duty of the higher classes to stretch out a helping hand to this class of inhabitants, and I feel sure, especially respecting those of Newcastle, that if they were helped but one step towards improvement, and could see a hope of their efforts being successful, they would struggle gratefully to avail themselves of the assistance, and their condition would be in every respect very different to what it now is; but as long as they feel themselves to be forgotten they have not the energy to help themselves.

"I have the honour to be, my Lord,
"Your Lordship's humble and obedient servant,
"CARLETON BAYNES, C.E."

R. D. Grainger, Esq.

RICHARD DUGARD GRAINGER, ESQ., sworn.

429. (*Chairman*)—You are a superintending inspector of the Board of Health, in the medical department?—I am.

430. How many years have you been so?—From the original constitution of the Board in 1848.

431. And you are lecturer on physiology in St. Thomas's Hospital?—I am.

432. At what time did you first visit Newcastle?—I arrived in Newcastle on Saturday, the 10th of September 1853, at six o'clock in the morning.

433. When did you leave the town?—I left the town on the following Monday week, the 19th of September, in the middle of the day.

436. Will you be good enough to give us an outline of the course of proceedings which you adopted while here?—I may state that at ten o'clock, as far as I remember, on the Saturday morning, I made it my first point to see several of the medical gentlemen of the town; and though I will not precisely charge my memory, I am almost sure the first gentleman I communicated with was Dr. Robinson.

437. Can you remember the names of any of the other gentlemen whom you saw tha first day?—Yes; Mr. Newton. I was the more anxious to see him because I had already had a communication with him, in 1851, with reference to the sanitary state of a certain part of the town, and I knew that he was the parochial medical officer of the most important district in the town. I think when I first called, Mr. Newton was out. Then I went to call on Sir John Fife. Those three gentlemen I saw within two or three hours, between ten and one o'clock on the Saturday of my arrival.

438. Did you see others whose names do not now occur to you?—I think I must also have seen some other medical gentlemen on that day, but I cannot distinguish those that I saw on the Saturday and several that I saw on the Sunday.

439. Can you mention a few more of the names of those whom you saw on Saturday, Sunday, or Monday?—I saw Dr. White. If you will allow me, I will refer to some reports which I made, and in which the names occur, for many of these gentlemen were strangers to me. I saw Dr. White and Mr. Rayne, the surgeon to the police force; and Dr. Embleton, one of the physicians of the infirmary, and lecturer on physiology in the College of Medicine; and Mr. Sang, the medical officer of the Westgate district. Dr. Robinson and Mr. Newton I have mentioned. Sir John Fife I have mentioned. I saw Mr. Harvey also, medical officer of another district in Newcastle. Those gentlemen I saw on the Saturday and the Sunday. Mr. Leslie Gregson I saw on the Monday, I believe; and on Friday, September 16th, I saw Mr. Gibb, house surgeon of the infirmary.

440. Did you take evidence from the gentlemen whose names you have just given?—Yes, I did.

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441. Did you communicate with any other medical gentlemen?—I communicated with several. Some of the names have escaped me, but there were some leading physicians, I know, in the town that I called on and endeavoured to see. I thought it was a matter of courtesy and propriety on my part to see all the principal medical men of the town. I called upon one or two physicians whose names I really now forget, and I did not, I think, succeed in finding them at home. I left cards.

442. Did you do your best to put yourself in communication with those members of the medical profession, with whose names, on so short an acquaintance with the place, you had become familiar?—I did. I was particularly anxious to see the Poor Law medical officers, because those gentlemen would, of course, have the most extensive knowledge of the epidemic, and also because all the official relations which I could hold with any medical gentlemen of this town must have been with them; for the authority under which I acted from the General Board of Health, and the Act of Parliament under which the Board of Health acts when epidemic disease prevails, regard the guardians of the poor and their medical officers only; so that, officially, I could have no relations with other parties.

443. Do I rightly understand you to say that, owing to the relations which, under the Nuisances Removal Act, necessarily exist between the Board of Health and the boards of guardians and them only, the medical officers of the board of guardians were the only officers with whom you could officially be called upon to co-operate?—Exactly so.

444. Did you, on the evening of the Saturday, have a conference with those medical officers?—On the Saturday evening I attended the board of guardians at seven o'clock, and there I saw several of the medical officers in the presence of the board in the board room. Then subsequently I had other communications with them.

445. Did you immediately proceed to offer to the board of guardians, as a board, and also through their medical officers, such suggestions as you thought best calculated to mitigate or arrest the progress of the disease?—I did, on the Saturday evening. I then stated to them the measures which, according to my general instructions from the Board of Health, were considered best to resist the epidemic; for, as an officer of the Board of Health, my duty was to carry out the views of the Board, which I knew with reference to epidemic cholera. I stated to the guardians that, generally speaking, it was desirable to carry out the same kind of measures which I found had already been recommended to them—house-to-house visitation, the establishment of local dispensaries, obtaining additional medical aid, and various other measures of that kind; but that will doubtless appear upon the minutes of the board of guardians—and upon that evening, as I now remember, the board of guardians resolved to appoint several gentlemen in medical practice to assist the ordinary medical officers, and sixteen senior students to act as house-to-house visitors.

446. Can you recollect at what time those suggestions for house-to-house visitation, dispensaries, and additional medical attendants, were carried out?—That appears partly in some of the reports which are before you with reference to the Board of Health; but I may state generally that there was the greatest difficulty in obtaining the sixteen medical students as visitors; because they were to be obtained from among the medical students of the schools in this town, and, as I was informed, many of them were then absent from Newcastle, and I know that several had to be fetched from some distance. I think there were some four or five obtained almost immediately by the medical officers, or in the course of a day or two.

447. Was it your duty, or was it the duty of the board of guardians, to provide these medical visitors?—It was the duty of the board of guardians.

448. It was your duty to recommend the providing of them, if you thought it expedient?—My function then ceased. I think, however, it is but right that I should mention that I should have been most happy to have facilitated the obtaining of senior students to act in the house-to-house visitation from another quarter, that is to say, from London; only that I felt considerable difficulty in publicly offering to do so, as I was assured that the medical visitors could be obtained from the two medical schools in Newcastle. I did not like to do it for fear I should have appeared to have been so far stepping out of my strict duty. I thought it would have appeared discourteous to the schools in this town, to have offered to obtain from the London schools visitors for that purpose; but I also think it right to state that on Monday, the 12th, I sent this telegraphic message to the General Board of Health—"Obtain addresses of some senior students to come if wanted." There was so much difficulty in obtaining medical students in the town, that I thought I was bound to provide for the emergency, if it could not be met here; but efforts were made, and the gentlemen were obtained from day to day to carry on the house-to-house visitation.

449. Do you wish to give in these reports of yours to the General Board of Health, together with the documentary information thereto appended, as evidence before this Commission?—I do.

"*Copies of the Reports to the General Board of Health, made on the 11th, 12th, 13th, 14th, 15th, and 16th September, 1853, by R. D. Grainger, Esq., together with extracts from the documentary information thereto appended.*

"Sir, "Newcastle-on-Tyne, September 11th, 1853.

"I beg to report for the information of the General Board of Health that I reached this town early yesterday morning.

R. D. Grainger, Esq.

19th Jan. 1854.

Copies of Reports, &c., 11th Sept. 1853.

"I have had several interviews with all the medical officers, and with several of the leading physicians and surgeons. The concurrent testimony of these gentlemen is, that the present attack of cholera is undoubtedly of the malignant form, and that it is epidemic at this time in Newcastle. Many of these medical men have had large experience in the disease, and mention in their evidence, herewith appended, the facts which support their opinion. In the correctness of their view I entirely agree, and for the following reasons :—

"1. The disease has been wide spread, and has appeared in all parts of the town, but in different degrees of intensity.

"2. There is an immense amount of diarrhœa attacking all classes, high and low, so that there is a general feeling of apprehension.

"3. The characteristics of the disease are unquestionably those of Asiatic Cholera. I have seen some cases, and find all the marks of the epidemic.

"4. It has already acquired a considerable height; the number of attacks of collapsed cholera reported as having occurred in the public practice of the medical officers up to this day, and almost all within eight days, being 114; of these, forty-one have occurred within the last twenty-four hours; the deaths reported by these gentlemen amount to fifty-three, of which seventeen within twenty-four hours. Several cases were left in articulo mortis when the surgeons made their report. Besides these, there have been several deaths among the better classes of mechanics, tradesmen, and shopkeepers, but to what amount cannot at this moment be ascertained.

"5. The intensity and frightfully rapid progress of the attacks, several persons having died in seven or eight hours after appearing to be in health.

"6. There have been observed other secondary but significant marks of an epidemic character, such as the peculiar uneasiness and anxiety at the præcordia; this, to a considerable extent, preceding the diarrhœa for two to three days; another sign is, the increased action of aperients and tendency to general relaxation of the bowels, even when not amounting to diarrhœa.

"As to the future progress of the epidemic, I have had this evening a conference with all the medical officers, and they agree that, at this time the disease is increasing, as shewn by the returns. The general opinion likewise is, that this is one of the most severe attacks, so far as it can be now judged of, that has yet occurred. The virulence, as indicated by the rapidly fatal result, and the large mortality, *very few* having rallied from collapse, are considered important indications.

"All the medical men are agreed that premonitory diarrhœa is almost universally present, and that the only mode for giving effectual aid to the population is by systematic house-to-house visitation; prompt treatment being the one end of all the efforts now being made by the authorities.

"The Board of Guardians have been most active and zealous. On Friday they met, and resolved to meet daily during the epidemic. Some few extra medical men were appointed on Friday, and the sanitary measures within the province of the Board were decided on. Last evening a second meeting was held attended by the medical officers, at which I was present. After reports had been made shewing the progress of the epidemic, I explained the views and principles of the General Board of Health, for the management of the disease, particularly pointing out that now was the time to make every effort to check the pestilence by efficient house visitation; that for this purpose a sufficient number of medical visitors should be immediately appointed, to make at least two visits per diem in the affected districts, namely, in the early morning before the people went to work, and in the evening after they returned home. I also advised the opening of dispensaries and all other measures, required to assist those attacked. The sanitary measures required were particularly enforced, and I am happy to say the board readily responded to all these suggestions. They directed the medical officers to state what extra assistance was at this time requisite; and the result was, that four out of the five officers had an assistant appointed, being a qualified gentleman in practice, and besides this, sixteen senior students were directed to be engaged as medical visitors, acting under the immediate superintendence of the medical officers, each of these acting as an inspector for his district.

"Up to this time no house visitation has been attempted, as only a few (six) of the students have been secured, and the medical officers and their assistants have been incessantly occupied in attending to calls for assistance. Messengers are to be despatched to the neighbouring towns, to find the students there residing belonging to the medical schools of this town, and it is expected the required number will very soon be obtained; but if not, I have advised the chairman of the guardians to allow me to send to the London hospitals for assistance.

"A plan of procedure has this evening been agreed upon by the medical officers; and I have no doubt, as soon as the staff can be collected and put in action, the disease will be controlled.

"But it is right to mention that I have to-day been through some of the worst districts, and have inspected many of the houses where deaths have taken place. Nothing can be conceived more unfavourable as to the public health; the alleys are very narrow, not more than four feet; the houses dark, fœtid, and enormously over-crowded: filth and ordure lying about in all directions, confirming the account given by Mr. Newton and the inspector of nuisances.

"The Common Lodging-houses Act has not yet been put in operation; but there is to

be a meeting of the Town Council on Wednesday, when I trust the byelaws will be approved. *R. D. Grainger, Esq.*

"The mayor is most anxious to assist in all the measures required. At my recommendation he has very promptly ordered 500 copies of the Instructions of the General Board for Captains to be printed and distributed. 19th Jan. 1854.

"I beg to call the attention of the General Board to the important statement of Doctor Greenhow of Tynemouth.—I have the honour to be, Sir, *Copies of Reports, &c., Sept.* 1853.

"Your obedient Servant,

"R. D. GRAINGER."

"*Dr. White*—Is a physician to the Infirmary, and has practised in Newcastle for many years. In 1832 had charge of the Cholera Hospital, Gateshead, and had then a large experience of the disease. Has seen a number of cases within the last ten days; of these almost the whole have died: not one which had passed into collapse recovered. There is a large amount of diarrhœa in the town, among all classes, high and low: some of his fatal cases were among shopkeepers of the most respectable classes. This is different from what took place in 1832, when the disease was almost confined to the poor. In all the cases he has investigated there had been more or less of diarrhœa, and this neglected. The epidemic is more malignant, and decidedly more rapid, than he has ever seen; in some cases death took place in from nine to twelve hours. * * * * * * * The disease is unquestionably established in its epidemic form. The great thing to be attended to is to give assistance in the diarrhœal stage: medical men should be sent into the infected districts, from house to house, to seek out and treat the premonitory diarrhœa; little or nothing can be done in collapse.

"*Septimus William Rayne, Esq.*—Has been in practice several years in this town: witnessed the cholera of 1832, and saw much of it in 1849. Is superintending surgeon of the police, and in 1849 had charge of Walker Colliery District for the owners. * * * * * * * Found that by early treatment, by separating the healthy from the sick, and thoroughly cleansing and lime washing, the epidemic was arrested: this was marked. A good many of the people were taken out of the worst houses and placed in tents: not one of them was attacked. The majority of the collier cottages have no drainage whatever; they have no privies; the men go behind the hedges; the females use vessels, and empty them on the midden just in front of the door, perhaps three steps off; and the children deposit their excrement just in front. In the country districts the cottages in the interior are very clean, but this is defeated by the filth around. There is a great deal of fever in these colliery villages. Is anxious to call Mr. Grainger's attention to a serious evil close to the town; it is a colliery district called Spital-tongues: it has a large population. There are large accumulations of ashes and filth close to the dwellings, no drainage, and the cottages, differing from the country districts, are very dirty. Fever always exists here more or less. At this time there has been no cholera, but an immense deal of diarrhœa; he is employed by the owners of the pits to attend the people. * * * * * * Has had six fatal cases of cholera in private practice, all among the middling class: no case of collapse has yet recovered. There had been in all premonitory diarrhœa, except in one case. * * * * * * His first case occurred on Sunday last; believes no case took place before August 31st. There is a great deal of diarrhœa among his private patients, with depression and sinking at the epigastrium. Is decidedly of opinion that this is an epidemic outbreak, and more severe than that of 1832 or 1849: death takes place much more rapidly, and occurs among shopkeepers and others. * * * * * * * The only effectual mode of giving assistance is by seeking out and treating the diarrhœa. There is a tendency to increase in the epidemic. * * * * * *

Dr. Embleton.—Is one of the physicians of the infirmary, and lecturer on physiology at the College of Medicine in connexion with Durham University.—witnessed the cholera of 1832, in Newcastle, also that of 1849. The present is an epidemic attack of cholera; of this has no doubt. The attacks of cholera are scattered in various parts of the town, among middling and lower classes. One fatal case has occurred in the infirmary. There is a large amount of diarrhœa all over the town. As far as he can ascertain there is a tendency, at this time, in the epidemic to increase. Has not had any case of cholera in his private practice. The town, as to its sanitary condition, is not much if any better than in 1849. Some trunk sewers have been made, but very few houses are yet drained into them. There was no compulsory power to enforce house drainage in the old local Act, or if so was never put into force; by the new Act, passed in August last, ample powers are given. The poorer districts are in a very bad state. There is great overcrowding, especially in the lodging-houses. Is of opinion it is most important to the public health that the Lodging-house Act should be immediately enforced. The only mode of giving medical assistance to the population, is by ferreting out the diarrhœal cases, by house-to-house visitation and prompt treatment. This is the universal opinion of the medical men here, so far as he knows.

R. D. Grainger, Esq.

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John Sang, Esq.—Is medical officer of Westgate District, and has also the Union Workhouse. At this time there are about 450 inmates; there is a good deal of diarrhœa among them, but as yet no cholera; every precaution has been taken to guard the inmates. Has had two cases of cholera in private practice; one fatal. No attack yet among the paupers of his district, but a great deal of diarrhœa. * * * * The disease has been worst in and about Cumberland Row and neighbourhood. This is a respectable part of the town, with tradesmen, &c. The privies are in a bad state; smells are sometimes horrible. In one instance, in a very respectable house, the smells were so bad that he advised the tenant to leave; in this house there had been a good deal of sickness—disturbance of the stomach—especially among the children; the family have improved in health since they left. Has heard of other similar instances. Has seen the cesspool matter running out of the privies into the street. Considers this an epidemic outbreak, and threatens to be as serious as in 1832. There is a good deal of alarm in the town. The sanitary state of his district is very bad; no proper drainage, merely open gutters, and no house drains. The foul water stands in pools close to the houses, back and front. The district is new, within these few years; the streets are only here and there paved; there are privies, but in a very dirty state. There is not by any means so much crowding as in Sandgate and other old parts of the town; the population, too, generally is more respectable—mechanics, &c., but few Irish. The Board of Guardians have appointed six extra medical visitors—four being senior students—at present three of these have been obtained and are at work; expects to get the others without delay. The only effectual method of giving medical assistance to the poor, is by house-to-house visitation. At present no dispensaries have been provided: at present does not think one is wanted in his district. No lime-washing has yet been done, but it is to be put into effect. The police have had directions to prevent the sale of bad fruit and fish.

Dr. Robinson.—Has paid great attention to the question of the public health and to the state of Newcastle-on-Tyne. Has had two cases of cholera in private practice; both fatal. In one there had been diarrhœa two days, in the other twelve hours. Considers this to be an epidemic outbreak of cholera; the fatal attacks are scattered in many different parts of the town, from the extreme east to west. There is much diarrhœa among all classes.

Has inquired into the first cases of cholera. No cases are known to have been imported from Hamburgh or elsewhere. The earliest cases, he believes, occurred at Bill Quay, a small place on the Tyne, three miles from Newcastle. A man was attacked with diarrhœa, not cholera; he lived at a distance of twenty yards from the river, opposite to a ship which is reputed as coming from Bremen; no case of cholera had occurred in this ship on the passage, nor at any time after her arrival. The vessel had been at Bill Quay a fortnight before the above man was attacked with diarrhœa. He had mingled with the sailors of the vessel on shore, not on ship. This man's wife and daughter were subsequently attacked with cholera and died. Some of the people thought disease was brought by the ship; but, as explained, no attack of cholera or anything like it had occurred, or has, so far as he knows, since taken place among the crew.

"There is a strong feeling among the whole profession of this town of the importance of treating the premonitory diarrhœa, and of seeking this out by house-to-house visitation.

"*W. Newton, Esq.*—Has the district, including Sandgate, one of the most densely crowded parts of the town; is also a member of the town council; cholera has attacked many of the poor; has had up to this time (September 11th), 41 cases of collapsed cholera, of which 20 have proved fatal. His district has suffered more than *any* other in the town. The attack is undoubtedly epidemic, and very generally disseminated. There is a large amount of diarrhœa of a severe type. * * * Attributes the greatest importance to house-to-house visitation.

"The scavenging is very bad; there are awful smells in the poor streets and alleys; he found this especially so yesterday (Saturday) morning at 4 o'clock. In many parts there are no privies at all, and the poor often throw the soil out of the window, or use "kits," *i.e.* small tubs, pots, &c., and deposit the filth at the doors for the scavengers to remove. It is in these localities where disease prevails. There is at this time fearful overcrowding, more than usual, owing to Irish coming from the south for the harvest; has counted in one small room 25; there are many other houses as crowded as this. The Common Lodging-House Act has not yet been put in operation.

"*Sir John Fife*—Is one of the surgeons of the general infirmary. Has had three cases of cholera among the poorer class—none fatal. There is a large amount of diarrhœa among all ranks; it is severe. Considers present an epidemic attack. * * *

"*Mr. Harvey*,—Medical officer of a district. Saw the epidemic of 1832 and 1848-49. According to his experience, the epidemic is not so severe as in 1832. His district is in the upper part of the town, better ventilated and cleaner than the lower part. There are no lodging-houses in it. The epidemic is not much developed in his district.

"*Mr. Jenkins*—Relieving officer. Some of the attacks have been very sudden. Two men died last night, one of whom in the evening he saw singing at a club. He went home and was dead this morning. The second case was a butcher, who went home at twelve last night after attending the market, and he was dead by eight this morning (Sunday). There is immense overcrowding; he counted in one room 25 persons. The dimensions were 12 feet wide, 15 feet long, and 7 feet high.

"This is not uncommon. The stench on entering these rooms at night is horrible; it is

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just enough to knock you down. He cannot remain in, as it causes sickness. Was formerly in the police, and was inspector of nuisances; has heard the constables complain that they could not stay in these crowded rooms. There are no privies scarcely in Sandgate, public or private. * * *

Copies of Reports, &c., Sept. 1853.

"Newcastle-on-Tyne, 12th September 1853.

"Sir,—I forwarded yesterday as full a report as the pressure of my engagements would allow. In order to save time, I commence this letter previous to meeting the medical staff and guardians this evening.

"As to the mode in which cholera appeared in this town, I have not had time to make close inquiry; but it is stated by the many physicians and surgeons whom I have seen, that there have been no imported cases of cholera from Hamburgh, or other foreign port, where the disease existed; nor is there any suspicion among the profession, so far as I have inquired, that this pestilence was in any way introduced by contagion. I mentioned that the first attacks are believed to be those at Bill Quay, the circumstances attending which were investigated by Dr. Robinson, a gentleman particularly well qualified for the inquiry, as he has paid great attention to the subject of the public health. The facts of the case, as described by Dr. Robinson, entirely negative the idea of an introduction by contagion. I propose to enquire further into the first attacks in Newcastle itself. I may add, that at Gateshead, no suspicion of importation or contagion is entertained. Since this was written, I have received the important statement of Mr. Gregson, herewith forwarded.

"I briefly alluded to the sanitary condition of this town in my report of yesterday; and the medical evidence, forwarded to the general board, shows that Newcastle is, in this respect, in a most unsatisfactory state. Owing to the want of privies and house-drains, the densely populated parts are in a deplorable condition of filth. According to the medical officer and relieving officer, in the district called Sandgate, occupied by multitudes of the labouring classes, especially Irish, there are neither private nor public privies. The consequence is, the people are compelled to throw the soil into the alleys, or to retain it in the houses in tubs, &c. The scavenging is said to be imperfectly performed. In Sandgate and elsewhere there is inordinate overcrowding—constituting at all times a great evil, and at this time constituting a most dangerous state of things in regard to the public health. The density of population, as I witnessed yesterday, cannot be conceived of without actual inspection. The instances forwarded yesterday may serve for hundreds of similar dwellings. In the room described to me on Saturday morning by Mr. Newton, the surgeon of the district, as containing 20 occupants, two attacks of the epidemic cholera took place in the course of the same day. The influx of Irish labourers coming from the south for harvest work, has fearfully increased the evil. The relieving officer, Mr. Jenkins, informed me yesterday, that a few days since he saw from 100 to 150 of these people land from a Hull steamer, who immediately walked up in a troop to the already densely-packed houses in Sandgate. Many of the houses I entered, owing to the narrowness of the alleys, less than four feet, the smallness and dirt of the windows, and the lowness of the ceiling, were so dark that I was obliged, though in the middle of the day, to come out to see to write my notes. Several deaths have taken place; and in one room I saw the bodies of a mother and daughter who had died in the morning—a third person having been removed in a dying state.

"It is a most unfortunate circumstance that, although many of these alleys were flagged and channelled by the Town Council nearly two years ago, as I was informed, the provisions of the Common Lodging-house Act, by which alone the principal evils could have been removed, have not been enforced. The subject is to be considered at the meeting of the Council on Wednesday; and it is intended to suspend the standing orders, so that the byelaws may immediately be adopted. I have had two interviews with the mayor, who is most anxious that every effort should be made to promote the public health. I have suggested that immediate steps should be taken to cleanse out the narrow alleys and courts, and in all cases where these are flagged, so that they will quickly dry, to have them washed out daily by the hose and jet. Also to send the police into the crowded lodging-houses, and to endeavour to effect some diminution of numbers.

"I have already stated that this epidemic is by no means confined to the poor; many of the better classes have been attacked. I have just seen two such cases—one a shopkeeper, in good circumstances and living in a principal trading street; he was dying. The second, a child, who had somewhat rallied. They presented all the characters of malignant cholera. In that neighbourhood, at the back, is a miserable district (part of Westgate), where several deaths have occurred. There is no doubt that the general malaria rising out of the neglected and miserable parts of Newcastle overhangs the whole town and penetrates into every domicile; and acts, in this epidemic period, as an intensifying, predisposing, and all-influential cause. The state of things in this town induces me, in the discharge of the duties intrusted to me, to express to the General Board of Health my strong conviction, that it is of the first consequence at this critical period, when Europe has been visited by the most deadly outbreak of cholera that it has yet experienced, and when it has shown itself in a most fatal and intractable form in Newcastle, that all possible precautionary measures should, without delay, be put in execution in all populous places.

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"At the meeting of the guardians this evening, a dispensary was appointed, to be open night and day to all who want medicine, without expense. I forward a statement of the progress of the epidemic during the last 24 hours.

"It is hoped that to-morrow the remaining students will be forthcoming."

Copies of Reports, &c., Sept. 1853.

"STATEMENT of Cholera, &c., under Medical Officers during the last 24 hours (many in private practice.)

New Cases of Cholera.	Choleraic Diarrhœa.	Deaths.	Recoveries.
57	Many (not counted.)	23	10.

(Signed) R. D. GRAINGER.

"*T. Leslie Gregson*, Esquire, has been several years in practice in Newcastle. Was seven years in Egypt, and there witnessed the great epidemic of 1832, which carried off in in Alexandria many thousands. He had a distinct case of cholera six weeks, and a second a fortnight ago. No communication whatever with ships or sailors. He also attended what were considered to be the first cases in Newcastle in the present epidemic. These took place previous to those at Bill Quay; the first of them on September 1st.

This was a family which lived in Forth Street, at a distance of a quarter of a mile from the river. The father was first seized; he was a person in respectable circumstances, very temperate, and who had nothing to do with the shipping, having principally employment with the railways and coal. There was not the least reason to suppose he had had any communication with vessels or sailors. He was rather subject to diarrhœa, but believes he had none at the time; he was seized at three in the morning, in two hours and a half was collapsed, and died in seven hours. His wife had diarrhœa during her husband's attack; he (Mr. G.) tried to check it by camphor, opium, and calomel in full doses; but disease went on, and on the third day after the attack of her husband, she was seized with collapse, and in three days died. Two children were also attacked, but both recovered. Had attended the family formerly, and also others in the street. There are no particular causes of unhealthiness that he is aware of; there had been no fever previously, but a case occurred during the cholera. A girl two doors off was attacked by cholera after fever, and died. Speedily after these first cases attacks occurred in all parts of the town. There was not the slightest reason to suppose there had been any communication between these persons and the first attacked. Has had many cases, and six deaths, and fears others will die. In some cases the attacks were fatal in a few hours.

* * * * * * Knows that last night four deaths took place in one court near the river, and knows that several took place also last night in Gateshead. The epidemic has been most fatal and severe; thinks that three-fourths of those in collapse have died.

"Newcastle-on-Tyne, 13th September 1853.

"Sir.—I beg to report, for the information of the General Board of Health, that the Guardians of this town adopted some further measures at their meeting last evening, for improving the public health and checking the epidemic—of these a note is herewith forwarded (vide paper A.) The Mayor, to whom I had recommended the washing out of the alleys, &c., yesterday, as I am informed, ordered the fire-engines to be used for this purpose.

"A very large amount of diarrhœa exists in all parts of the town, the surgeries of the medical officers being, as they state, almost besieged; many applications are also made during the night. The druggists are also much occupied, especially in the poorer parts. A multitude of cases of diarrhœa—many of rice-water character—were yesterday detected by the extra medical men, and promptly treated. It was found impossible, especially without printed forms (which are not yet printed), to keep account of the totals of these diarrhœal attacks. All the medical officers spoke to the vast advantage of the preventive system. One gentleman stated that more than sixty had been thus treated in this district, and he expected they would be checked almost entirely. Another surgeon had himself visited a second time twelve severe choleraic cases, discovered in the morning, and these all promised recovery. Shall, if time permit, add any important matter communicated at the meeting this evening. It is my intention to accompany some of the visitors, if time permits.

"At the meeting of the guardians it was impossible to obtain more than the total number of fresh attacks of cholera and diarrhœa.

"There is a very large amount of choleraic diarrhœa, and a still larger number of cases of simple diarrhœa, with various reports from druggists as to the increased applications for medicine. The Board have made some additional appointments to meet the demand on the medical officers. The importance of early treatment was stated by several of the surgeons. (Signed) R. D. GRAINGER.

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"REPORT of CHOLERA for this day, September 13th, reported by the medical officers.
Total new cases of developed cholera - - - 86.
Deaths - - - - - - - - - - - 37.
(Signed) R. D. GRAINGER.

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"Newcastle, September 14, 1853.

"Sir,—All the accounts I have received to-day tend to show that the epidemic in this town is in no degree diminished. I have requested to be furnished with a full return from the sub-registrars, of all the deaths from cholera that have taken place up to this date; and also with the deaths from diarrhœa during the same period, so as to show the total mortality: this information I was promised this evening.

"The reports of the medical officers and of the registrar of deaths were received this evening, and prove that there has been a great development of the disease during the last twenty-four hours. I have to-day seen some physicians in large private practice. They state there is an enormous amount of diarrhœa, pain at the epigastrium, and other premonitory indications; and this among all ranks, from the highest to the lowest. One physician, (Doctor Humble), stated he had been called to several cases of developed cholera among the most respectable tradesmen, clerks, &c., but as yet he had heard of none among the professional and higher classes. All my informants state, there is (as the rule) premonitory diarrhœa, and that it has been neglected. This fatal apathy and ignorance cannot, it may be expected, continue much longer—as some thousand hand-bills are to be circulated, it is hoped this evening. The inclosed notice was placarded in large size this morning all over the town. The return from Gateshead for to-day shows a decided increase, and the epidemic is there also very severe.

"Last night, from ten to twelve, I accompanied the surgeon of the worst district in Newcastle, with two of his visitors. The people were standing at their doors, and in the streets, in crowds, and constant applications were made for assistance. I saw many cases in all stages—three or four were in articulo mortis. In one house there had been two deaths. It was in the midst of the stench arising from the excrement thrown into the streets. A druggist living next door said the stench was awful; and Mr. Newton, the medical officer, stated, when he went through the district at night, after the people had emptied their vessels into the gulley, &c., that the effluvia was overpowering. Not one of those houses which I visited had a privy. The district is distinct from the one, already noticed in a former report, called Sandgate. The people were urgent in their complaints of the enormity of these most fatal conditions. In several of the severe cases, I ascertained there had been neglected diarrhœa; one or two cases are specimens of hundreds. I questioned a woman in collapse; she had had diarrhœa a week, but did not apply for advice till Sunday, when collapse had begun. In another room I found a man pulseless, and evidently dying; he had had diarrhœa, his wife informed me, but neglected it, thinking it would go off. I saw many patients progressing favourably, who had been treated by the visitors, several of whom had made no application for, or had received medical aid previously.

"Notwithstanding the very severe mortality, the returns up to the present day show, I feel entirely satisfied, that if it had not been for the most prompt and efficient medical aid, a much larger sacrifice of life would have occurred. I hope to-morrow to send an account of the medical assistance that has been provided.

"I have to report that I have this day had an interview with the town council, presided over by the mayor. The result I will explain to-morrow; the main results will be gathered from the accompanying letter of the town clerk. The standing orders were suspended, for the purpose of facilitating the regulation of the Irish and other common lodging-houses.

"I have the honour to be, Sir,
"Your most obedient Servant,
"R. D. GRAINGER."

"GATESHEAD TOWN.—September 14th.

"(No returns from out-districts, but medical officers were directed, two days ago, to report all new cases.)

"RETURN of CHOLERA and DIARRHŒA.—September 14th, 1853.

"Medical Officer of town:—R. H. WILSON.

DISEASE.	New Cases.	Cases remaining from 12th.	Total.	Recovered.	Dead.	Remaining on hand.
Cholera - - - - -	9	12	21	1	3	17
Rice Water Stools - -	2	2	4	–	–	4
Simple Diarrhœa - -	35	–	–	–	–	–

"Many cases at dispensary, and seven deaths.

"The Registrar of deaths of the town sub-district reports a total of twenty-two deaths in the last twenty-four hours, as registered—

Last return of deaths - - - - - 61
New deaths - - - - - - 22 } Total, 83

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"Mr. Wilson and also Mr. Brown, of the Dispensary, report great increase of disease.

"Four of the six visitors have been obtained, and three have been at work, the other two are expected.

"Authority is given to medical officer to obtain more visitors if he require them. One extra has been appointed to-day to attend at a druggist's shop.

"Dispensers are to be supplied to every private surgeon requiring it.

"The hospital has been opened.

"Notices to be served immediately to Irish lodging-houses to register; and police employed in interval to endeavour to thin them; the question of procuring tents, which it is said are available, was considered by committee, and will be again to-morrow, after result of police effort is known. I have advised the use of tents; the removal to be under medical advice. There was and is much alarm among the people; but the placard has given satisfaction and lessened alarm. The medical men report that there is almost always premonitory diarrhœa, often neglected, but controllable if seen early.

"R. D. GRAINGER."

NEWCASTLE-UPON-TYNE UNION.

Number of Deaths from Cholera and Diarrhœa registered.

Dates.		Cholera.						Diarrhœa.						Grand Total.
		All Saints.	St. Nicholas.	St. Andrew.	Westgate.	Byker.	Total.	All Saints.	St. Nicholas.	St. Andrew.	Westgate.	Byker.	Total.	
1853.														
August	31	–	–	1	–	–	1	–	–	–	–	–	–	1
September	1	–	1	–	–	–	1	–	–	–	–	–	–	1
"	2	–	–	–	–	–	–	–	1	–	–	–	1	1
"	3	3	–	–	–	–	3	2	–		1	–	3	6
"	4	–	–	–	–	–	–	–	–	1	1	–	2	2
"	5	–	–	–	4	–	4	–	–	–	2	–	2	6
"	6	–	5	–	1	–	6	–	–	1	–	–	1	7
"	7	–	3	2	1	–	6	–	–	–	–	–	–	6
"	8	–	1	–	3	1	5	–	–	–	–	–	–	5
"	9	8	1	4	7	–	20	–	–	–	1	–	1	21
"	10	7	4	3	3	–	17	1	1	–	1	–	3	20
"	11	12	5	2	2	–	21	–	–	–	–	–	–	21
"	12	6	8	6	7	2	29	–	2	–	–	–	2	31
"	13	10	7	4	4	2	27	–	–	–	–	–	–	27
"	14	18	22	6	7	5	58	–	–	–	1	–	1	59
		64	57	28	39	10	198	3	4	2	7	–	16	214

(Signed) R. D. GRAINGER.

"R. D. Grainger to T. Taylor, Esq. "Newcastle, 15th September 1853.

"Sir,—I herewith enclose a return of the number of extra medical men, appointed by the guardians to give assistance to the sick. The plan has been to appoint one or more assistants, being qualified practitioners, to each of the five regular medical officers, and a sufficient number of senior students to act under them and conduct the house-to-house visitation.

"In the reports I had the honour to address to the General Board of Health last year, relative to the progress the cholera had made in Poland and Germany, I stated that it was the most severe outbreak that had yet appeared in Europe. I regret to state, that on comparing the daily returns of new cases and deaths, which were recorded in the 'Newcastle Courant,' as having occurred in the epidemic of 1831-32 in Newcastle, with the present mortality, it appears that the present outbreak, so far as it has extended, like that on the Continent, is much more severe; this will appear from the enclosed return for 1831-32. There has been a great increase in the mortality. The reports received from the Sub-Registrars show the deaths for the last twenty-four hours,—

Cholera - - - - - - - 97
Diarrhœa - - - - - - - 4
} Total, 101

"P.S.—Authority was given to the medical officers to call in the aid of any number of private practitioners they deem necessary."

"NEWCASTLE.

"RETURN OF DEATHS, September 16th, 1853.

	Cholera.	Diarrhœa.	Grand Total.
Total - - -	101	4	105

(Signed) "R. D. GRAINGER."

"No return has been forwarded from Gateshead."

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"Newcastle, September 16th, 1853.

SIR,—"I beg to report that a joint committee of the town council and guardians was appointed last evening, to take steps for providing a house or houses of refuge, and take into consideration the question of providing tents for the people occupying the densely populated and infected localities.

"A meeting was held this morning, at which Mr. Hurst, the Poor-law inspector, also attended. I fully explained all the advantages of taking the poor out of their pestilential dwellings; and that, in the present emergency and amount of disease, it would probably be found that, under medical advice and superintendence, the people might be safely encamped, and stated that the plan ought to be tried. The committee, however, were so apprehensive of increasing the alarm in the public mind, that for the present they declined the proposal. A large building, or, I believe, block of warehouses belonging to the corporation, being now vacant, is immediately to be prepared under medical advice as a house of refuge, and the committee and surveyor left to examine the place. I propose visiting this building with Mr. Hurst. The committee meet again to-morrow at 10 A.M.

"Two of the churchyards have been closed, and it is expected that others, if not all, will soon be shut up also. There are, I am informed, two cemeteries, east and west—one having ten acres, with the means of getting six more if needed; this it is stated has plenty of room for interments. The smaller one has three acres, and is said to be nearly full.

"The Whittle Dean water company have, on the representations made to them both by the council and guardians, positively abandoned the Tyne, and have taken possession of what is affirmed by all to be a very pure stream some miles off; and this with their original supply at their reservoirs is, it was distinctly stated by the town clerk, quite sufficient to supply the whole of the districts connected with the company with pure water. It is admitted by the company that since July, the polluted water of the Tyne has been largely supplied to the joint populations of these towns, and only very imperfectly filtered, the filter apparatus being out of order. The most urgent complaints have been made at the meetings of the authorities, and I cannot refrain from expressing my opinion that the disease has been exasperated by this most improper procedure. I inclose a copy of a letter addressed by G. L. Lambert, Esquire, the mayor of Newcastle, to Mr. Hurst, relative to the water supply.

"I am desirous of submitting to the General Board some general remarks on the character of the epidemic now prevailing, and I will, if possible, forward them by the second post this evening.

"I send a notice on the occurrence of cholera at Hexham, also the evidence of Mr. Gibb, a gentleman of superior attainments, which throws an important light on the mode in which the epidemic in most cases attains the collapsed form. In the midst of this most severe outbreak, the medical officers find the diarrhœal stage hitherto controllable to a remarkable extent. Out of the eight reports received last night from the medical officers and assistants, it was reported that in six, so far as it had been possible to ascertain, not one had passed into collapse after treatment. It was impossible for the medical officers to state the number of diarrhœal cases which they had seen themselves, nor did the visitors, though I had urged them to do so, bring me in several instances their forms filled up; but it was stated by all that the number of cases was very great indeed. At the dispensary, 200 cases of premonitory attacks had been relieved, without any being known up to last night to have passed into collapse. One case, after treatment, was reported by one surgeon as going into collapse, and a visitor reported seven in a similar state, ending in cholera after treatment. As regards this last report, although I closely questioned the young man, I have considerable doubt whether there was not some mistake. He had been fagged early and late, and scarcely seemed to be certain as to the number. Of course it cannot be fully decided at present how all the cases above referred to will terminate. The visitors are reported as being extremely well received by the poor, and it is confidently anticipated by those whom I question, that in a short time the whole will work well, the people themselves assisting. The greatest interest is taken in the whole of this preventive system by the guardians, and especially because, when complete, it affords the only sure means of ascertaining the relative intensity of the disease in each particular locality. I have explained to the guardians that it will be necessary for them to appoint some medical gentleman to superintend the details, as at present I find it almost impossible, with so many demands on my time, to do this satisfactorily.

"I have the honour to be, Sir,

"Your obedient Servant,

"R. D. GRAINGER."

"Newcastle, September 16th, 1853.

"*C. J. Gibb, Esq.*—has been five years the house surgeon of the infirmary—has had an immense number of diarrhœal cases, certainly 600, in various stages; a great many had neglected it for one, two, three or four days; this is to a great extent caused by the painless nature of the attacks. A man last night came for himself. He said his brother had died the day before, that he had had the diarrhœa for some time; and had neglected it. From what he has heard, he is satisfied that this must have been the case in numerous instances. The attacks seen to early are in most cases controllable. Has not the means of tracing out the termination of many of the cases, as this relief at the

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infirmary is, of course, no part of the house visitation system—but knows in many the disease was stopped, and has no doubt this was the case with the great majority of attacks. A great number of those, even with simple diarrhœa, have pallor, dark areola round the eye; slight prostration—distinct proofs in his judgment of all these cases forming a part of the epidemic. Since the public notices have been issued, the applicants for relief have greatly increased. Some among them being more alarmed than hurt; the placards have been the means of relief being given in a large number of cases.

"Newcastle, 15th September 1853.

"*Mr. Grace*, a guardian, stated at meeting, that he had gone with two other guardians to visit a part of St. Peter's; they found large heaps of ashes, soil, &c., leaking out and causing a horrible nuisance, dangerous to the neighbourhood.

"I recommended to have them and all others removed, if thought *safe* by a medical officer, and under his authority and with proper disinfectants.

"Chairman of guardians questioned closely inspector of nuisances, and nothing satisfactory was elicited. Board adopted my recommendation and directed one of their surgeons to advise the inspector as to the safe procedure.

"*Water Supply.*—Great complaints have been made at the town council, and guardians, of the noxious quality of the water supplied by Whittle Dean Water Company. It appears owing either to the want of rain in the north, or to the company extending their business beyond their capability of supply, or to both these causes, that they have largely supplied the people of this town with water pumped from the Tyne, in the close vicinity of the town, where it is affirmed it is polluted by the sewage. Specimens were exhibited of a most noxious quality. I strongly pointed out the vast evil thus caused, as it is well known cholera in 1849 was repeatedly traced in its most virulent form to the use of water polluted by drainage and soakage from cesspools.

"The chairman of guardians was instructed by the meeting to communicate with the company, and this evening (15th) it was announced that they had abandoned the river supply entirely, and had supplied only the water from their reservoirs and gathering grounds at a distance of some miles from town."

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450. (*Mr. Newton.*)—Do you not remember attending a committee meeting of the board of guardians, at which the vice-chairman was in the chair?—On what day was that?

451. I do not remember the day; it was attended by yourself and all the medical officers of the union. The meeting was called for the purpose of considering about issuing a prescription to the public. Do you not remember my submitting to your notice a placard containing a prescription, a cheap formula, so that everybody might get proper medicine from the druggists, without having recourse to the charities of the town or to any other source?—I remember your (*Mr. Newton*) making a request that I would issue such a prescription and formula for the druggists.

452. You refused; you said that you would take no such responsibility on yourself?—I remember stating this perfectly well, that I would not, upon my own responsibility, issue any general prescription to the town of Newcastle-upon-Tyne; but I advised that some of the leading practitioners should meet together and agree upon such a formula, to be issued to the public.

453. Do you know that Dr. Gavin, when he came down here, did what I recommended you to do, but which you refused to do; and that a formula was published by the authority of that government inspector, and given to the public?—I understood so from the papers.

454. (*Chairman*)—Do you know that Dr. Gavin did so?—Yes.

455 Was it part of your duty as an officer of the Board of Health to take upon yourself such a responsibility?—No, it was not.

456. (*Mr. Newton.*) Was it part of Dr. Gavin's duty?—It rested with his discretion; but I have repeatedly expressed my wishes to the General Board of Health that the authority which I considered should issue such a general prescription—and that was the College of Physicians—should forthwith do so. And I would also state in answer to Mr. Newton's question, that in my view of the case (I am not a physician) it would have been a sort of intrusion upon the province of the distinguished medical practitioners of this town, if I had stepped out of my way to send forth such a prescription to this town. I must say it seemed to me to rest rather with the distinguished physicians and surgeons of the town, than with an officer of the Board of Health, whose motives and position afterwards might have been called in question. Moreover, when that matter of issuing a prescription publicly was first mentioned, I stated that one had already been issued and printed by the General Board of Health; and to show that I was not backward in beginning to afford relief where it appeared to me to be desirable, I called on the day of my arrival and saw the then mayor of Newcastle, Mr. Lambert, and brought before his notice the prescription for treating cholera on board ship, and the directions to seamen; with an express request on my part that he would take some measures to have proper handbills printed and circulated among the shipping; and that was done the next day.

457. (*Mr. Rayne.*) When there was a difficulty in getting medical students, would it not have been better to have called into action at once the junior branches of the medical profession in the place, who were qualified?—I endeavoured when I saw the medical officers to ascertain when these students would be forthcoming, and I was assured that they would be obtained; that dispatches and messages had been sent to them, and that

they would be immediately forthcoming. But I may state, in answer to the question of the gentleman who has just addressed you, that within some two or three days there was a carte blanche given to the medical officers of the board of guardians, to employ any of the practitioners of Newcastle to assist them in visiting the sick, and in giving them relief.

458. (*Chairman.*) Was it part of your duty to call into action either medical students or junior practitioners, or was it the duty of the board of guardians?—It was the duty of the board of guardians to find the medical assistance which the Board of Health through me might suggest or order; but you will allow me to state that, at that time, I had no legal power, nor had the Board of Health any legal power, to employ or order the employment of a single medical practitioner or student for any purpose. The Board of Health can only exercise that power over the board of guardians, after an order in council giving that power to the Board of Health; and at the time when I came to Newcastle the order in council, authorizing the Board of Health to act, had not been passed.

459. On what day was it passed?—It must have been passed between the 15th and 20th; I think about the 15th of September. Yes, here is the document afterwards issued by the Board of Health.

460. You have reason to believe that the order in council authorizing the Board of Health and its officers bore date the 15th day of September?—I have no doubt of it from that document.

461. Then perhaps even the General Board of Health in London may not have received notice of it till the 16th?—Probably not. That will probably appear on their minutes.

462. And on the 17th you resigned your charge here into the hands of Dr. Gavin?—I did.

463. Then do I rightly understand you to say not only that it was no part of your duty to call the junior medical practitioners, or any other persons into action, but that if it had been part of your duty, you had not the power even, so long as you were here, to do so?—I had not.

464. Is it one of the standing instructions of the General Board of Health to their superintending inspectors dispatched to a place labouring under cholera, to call together the medical officers and principal inhabitants of the place; or is their conduct in this respect left to their own discretion?—Their conduct in that respect, so far as my knowledge extends, is left to their own discretion.

465. (*Mr. Newton.*) Were you advised not to call the medical profession together in this town?—No; but I think I showed my wish that the leading members of the profession, and all who chose to come together, should take part in the measures which were then being adopted; because when Sir John Fife attended the guardians and gave them the benefit of his opinion, I thought it my duty to stand up and to say on the part of the General Board of Health that I begged to tender him my thanks and the thanks of the Board for the valuable information which he had given, and which I thought it most desirable that the guardians should receive from such a quarter.

466. (*Chairman.*) Mr. Newton wishes to ask you whether you were advised by any persons, medical practitioners or others, in this town not to call the medical profession together?—Certainly not.

467. Did you take any steps to make known to the medical profession generally the arrangements which were then about to be put in force in the town?—I took no other steps beyond suggesting and discussing those arrangements in the open meeting of the board of guardians, which was attended by many medical gentlemen, and particularly by Dr. Robinson. Dr. Robinson was present and gave his advice to the board of guardians, and must have been cognizant of all that was going on. It was my duty to communicate specially with the board of guardians, and with no other body; and it was their duty to decide on the arrangements to be made and to carry them out.

468. Was it then part of your duty to inform the medical profession, or any member of it, of the arrangements which the board of guardians in their discretion might think fit to determine on?—It was no part of my official duty, but it was my wish, which I evinced by trying to see all the leading medical men of the town.

469. (*Mr. Rayne.*) Was it your duty, as the servant of the public under the Public Health Act, to suggest measures to the board of guardians as preventitives of the cholera?—It was my duty to suggest measures, and I did suggest measures.

470. Do you remember having a communication with me (*Mr. Rayne*) on Sunday, the 11th of September, when I recommended to you, at the central hotel, the immediate separation of the sick from the healthy by means of tents, to which you fully agreed?—Fully.

471. At what time did you order or suggest to the board of guardians the provision of those tents and the removal of the healthy?—I cannot recall the time when first the recommendation as to the removal of the healthy into houses of refuge was made to the board of guardians; it is alluded to in my report of the 16th September; but my impression is, that when I saw them on the Saturday evening previous, I recommended that they should provide houses of refuge, to separate those who were well from those who were sick. Nor can I remember when first I may have suggested to them the providing of tents; but I see by my report of the 16th September that I had urged that matter on the joint committee of the town council and of the board of guardians on the evening of the 15th September, explaining at the time the advantages of the plan, and stating that it ought to be tried; but the committee were so apprehensive of increasing the alarm in the public mind that for the present they declined the proposal.

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472. (*Chairman.*) Do you happen to know at what time those houses of refuge were instituted?—My conviction is that I recommended them the first evening, as I told you. There was, however, great difficulty in finding any rooms or buildings whatever for the purpose. They told me they could not be got. I urged it again and again upon the guardians, but several days intervened before premises could be got; and then, as I see by my report of the 16th, some large warehouses, belonging to the corporation or some public body, were obtained about the middle or close of the week.

473. Do you believe that the board of guardians, after getting your recommendation to that effect, proceeded with reasonable diligence in looking about for such houses of refuge?—I believe they did, from the general willingness I found in the board of guardians to carry into full effect every recommendation which I had the honour of submitting to them.

474. Had you, at that time, any power to compel?—No.

(*Mr. Rayne.*)—How many people may have died in this town before you got that power?—I cannot tell. The order in council is dated on the 15th of September.

475. (*Chairman.*)—Did any member of the medical profession suggest to you that you should call together the medical profession as a body?—I do not recollect that any such suggestion was made. I do not say it was not made. It might have been made, but I do not recollect it.

476. Can you remember whether Dr. Robinson did or not make to you such a suggestion?—I have no recollection of Dr. Robinson making me any such suggestion.

477. Do you consider that the removal of the sick into hospitals would have improved their chances of recovery?—My knowledge of the treatment of cholera is this—that it is much safer and better to take away to houses of refuge those who are healthy, than to take the sick to hospitals. There is great danger in transporting persons in a state of collapse to a hospital, and the Board of Health have always advocated the treatment of sick persons in their own houses, if possible, because of the danger of transporting them in a state of collapse. I have known several persons die upon the passage from their house to the hospital.

478. (*Mr. Newton.*)—Do you remember your saying in the board-room, "Science, gentlemen, knows no cure for collapsed cholera?" Do you think that the utterance of those expressions, at a time when the public mind was peculiarly susceptible and was looking to you as an authority, was calculated to depress or encourage the community; in fact, calculated to predispose to cholera or not?—My remark was made in connection with the general mode of giving relief to a population attacked by cholera, and with a view to encourage the carrying prompt and early medical treatment into every poor man's house in this town; and I did say that, as far as my opinion went, in the present state of the knowledge of cholera in Europe, science could do little or nothing in an advanced or collapsed state of cholera. That is my opinion still.

479. "Science knows no remedy"—do you recollect those words?—Yes; and I have yet to learn what that remedy is, if there is one.

480. (*Mr. Simon.*)—If I understand you rightly, you said this chiefly with reference to the context, namely, that it was desirable, at the earliest moment possible, to treat premonitory diarrhœa?—Yes; I believe I used the words, that premonitory diarrhœa was as manageable as a collapsed state was unmanageable; and my experience of the management of this disease in London has been this, that the carrying to the poor man's house daily medical assistance is, of all others, the best means of allaying alarm, inspiring confidence, and preventing that fear which predisposes to cholera.

481. (*Chairman.*)—Your opinion is requested as to whether it would have been judicious for the board of guardians to call together the medical profession?—I did not conceive, at that time, it was necessary to have called the whole profession together.

482. Do you think that the board of guardians exhibited any negligence or want of zeal in carrying out the arrangements which you had suggested for the arrest of the epidemic?—They adopted every recommendation which I made but one; which, I think, on all accounts is greatly to be regretted. I recommended that they should immediately appoint some medical gentleman of this town, in whom the town had confidence, actively to superintend the details of the medical assistance which was being rendered by the medical visitors and students employed. That recommendation the guardians did not think proper to adopt; but, with that one exception, unless the matter of the tents be a second, they adopted every recommendation which I made.

483. With regard to the recommendations which they did adopt, do you think that they used due diligence in carrying them into execution?—I should think that it might have been possible to have got houses of refuge sooner; but in justice to the board of guardians I will say, that I know in many of the parishes in London that weeks sometimes elapsed before houses could be obtained for that purpose; no persons would let their houses for the purpose; and I know, in the parish of Lambeth, for two or three weeks no house could be got.

484. Did you ever suggest to the board of guardians that, in consideration of the sick being occasionally neglected by the healthy, it might therefore be desirable to provide hospitals?—I might, perhaps, have done so; I think not; but I cannot now charge my memory on all the individual points; there were some minutes probably taken of the proceedings of the board upon all these subjects, which might show.

(*The witness afterwards handed in a copy of the "Newcastle Journal" of the 17th September, containing the following Report or Abstract of Proceedings, from the 9th to the 15th September inclusive.*)

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"PROGRESS OF CHOLERA IN NEWCASTLE.

"Epidemic cholera, the outbreak of which we mentioned in our last, has since continued to spread in Newcastle-upon-Tyne, till nearly every part of the town has more or less been embraced within its pestilent folds. Though a number of the higher class of working people, and many even of the middle classes, have been struck down, the disease, as on former occasions, has for the most part been confined to the more densely populated part of the town, especially those parts where accumulations of filth, close, dirty, crowded, and ill-ventilated apartments, foul miasmata, and puddly waters (in which last-named misfortune all were more or less participators,) seemed even to invite rather than to repel the ravages of the destroyer. The people unhappily perish for the guilty negligence of their magistrates. All must sympathize with those families which find themselves, by no fault or will of their own, settled upon spots mapped out as the *habitat* of typhus, and the constant walk of the blue death whenever he alights upon our land. Still even with them, as well as with people in more favourable circumstances, much more might have been done to ward off the disease; for the cholera, when seizing on a victim, almost always does so by a grasp which may be shaken off at first, though neither strength nor skill avail to atone for a few hours' inattention to the insidious attack, and in too many instances, arises from the person's own culpable neglect or from the scarcely less culpable neglect of the authorities to interpose with a promptitude, and to inform them what to do when attacked, and aid them in the duty; many a life has been lost that might have been saved. Our notice of the progress of this virulent epidemic was brought up to the evening (of the 9th September) preceding our publication, when the board of guardians, by taking up the subject, directed public attention to the existence of the disease, which had been known, during the previous six days, to have entered and to be making head in the town, despite the most assiduous efforts of the private medical practitioners in every part of the town. On Friday evening little was done beyond receiving the reports of the medical officers, authorizing the medical staff to attend to all cases which might apply to them without the licence of the relieving officers, and forming the entire board into a committee to meet every evening to receive reports and take such measures as might appear necessary to meet the emergency. While, therefore, medical men in every part of the town were vigorously engaged in dealing with the epidemic in their own respective circles of patients, attention has more particularly been directed to the subject in connection with the guardians, and the medical aid enlisted by them to deal with the malady amongst the general masses and poorer portion of the population. Considerable, however, as the reports of the medical officers of the Poor Law Union show the extent of the disease to have been in the first week or ten days of its progress, to the numbers reported by them must be added the numbers of cases and deaths which did not come within the sphere of the operations of the guardians. To advert more particularly to the guardians at present, it may be mentioned that the reports of their medical officers at the board meeting on Saturday evening left no doubt of the spread of the disease; and the necessity of extending the amount and efficiency of their means of prevention and cure. The agency of the Board of Health was now also brought dilatorily into play, and to the appearance of one of its medical officers, as one who might be expected to speak with some degree of weight, as well as from the importance of his remarks, we devote considerable space.

"Mr. Grainger, a medical officer of the Board of Health, who has become intimately acquainted with the epidemic in all its phases, from having been sent by the Government to investigate the disease on the continent prior to its extending to this country in 18 9, and having subsequently taken a leading part in dealing with it when it had reached the metropolis, attended the meeting of the board of guardians on Saturday (the 10th September) evening and gave the board the benefit of his experience and suggestions. In the outset he observed that he should state to the board that it might well be expected that the occurrence of cholera in this part of England had excited the attention of the General Board of Health, as it had always proved in former epidemics that this part of the country had first suffered. Previous indications, which have been before the public must have shown (and it had doubtless attracted the attention of the gentlemen present) that there had been for some time a threatening state of things in the northern part of Germany, whence the existence of cholera in former years had usually extended to this country, and therefore the present state of things in this country could not but be considered of a serious character. He trusted, however, that his visit to this important town would not be one to inspire alarm, because, on the contrary, his object was, by suggesting the adoption of suitable measures, to assist in removing alarm and inspiring confidence in the means and powers of medical science to deal with the epidemic, and remove the false impression with respect to the actual character of cholera that it was a most sudden and uncontrollable disease. He believed he might state that this disease was not of that sudden and destructive character which it was often supposed to be, and which was doubtless one of the most alarming circumstances in the public mind in connection with the epidemic. On the contrary, it was known to the whole medical men of Europe, as of this country, that this epidemic disease was almost invariably preceded by a period of attack called epidemic diarrhœa, in which it was extremely manageable, and he thought there was no circumstance would more tend to allay public alarm, if it could be well known, than that the cholera was a disease which in itself presented a time—a stage extremely curable, and was not that sudden destructive, and incurable disease which it was supposed to be. He

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would not at all go into any detail in proof of this fact further than to mention that, having had during the epidemic of 1849 the superintendence under the Board of Health of the measures adopted for public security in the metropolis, he found that, of the cases brought under early treatment,—which was the great thing to be kept in view—not more than one case in five hundred afterwards passed into the alarming and destructive form of the disease called collapse. He could not conceive there was any circumstance more encouraging for those brought personally into such difficult circumstances at this moment than to know the fact, that out of those treated early, not more than one in five hundred passed into cholera. The experience obtained in Scotland was equally satisfactory, and he would merely mention that in the large city of Glasgow, out of nearly 14,000 cases of cholera, many of the attacks of which were on the very verge of collapse, rather less than thirty, after treatment, passed on to the collapse. He might say, therefore, that it was perfectly obvious—and the experience of this country was confirmed by that of Europe—that, by prompt and early treatment, the disease could usually be combated. Then he thought they would find from this that in fact the great object of any public body charged with the responsible duties such as rested upon the gentlemen here present should be to discover and treat in the earliest possible form the cases of diarrhœa. He had ascertained from some of the gentlemen present, and also from other practitioners in all ranks of life connected with various parts of the profession, that there was no doubt a large amount of diarrhœa prevailing in this town, which was always the case where there was anything like cholera, and the great object was to seek out these cases and give prompt and efficient treatment. There was another subject of great importance—that was, that the poor, not knowing the great importance of diarrhœa, very frequently neglected it, and he had been told only to-day by one of the surgeons of the town that he had had the case of a man who had diarrhœa for two days, and when advised to have medical advice, would not attend to it, and on the third day his case passed into one of collapse, and yesterday he died. The poor particularly were liable to neglect the warning to attend promptly, and at once, to the first manifestations of diarrhœa, not being aware of its importance. And another circumstance in connection with this diarrhœa had been most properly noticed by one of the public journals, viz. that cholera was frequently introduced by a painless diarrhœa, and by that means persons were lulled into security, and, not knowing the great importance of dealing with this state of the disease, never complained till, as it often proved to be, too late. Well, then, general experience hitherto, so far as he had been able to attain it by communication with his professional brethren both here and on the continent, was, that if the poor were to be beneficially assisted, the cases of diarrhœa must be sought out. It was necessary that medical men should go into the districts afflicted with diarrhœa, and carry medicines upon their persons and dispense it upon the spot. And he saw, from the public prints, that at the previous meeting of the board, suggestions had been made by one experienced medical officer, Mr. Newton, which he thought in all respects were excellent, and it would tend greatly to the public benefit that they should be carried out as far as practicable. He had had no communication with Mr. Newton upon this subject; and as this appeared to be the first developed attack of cholera in this country it was really a point of great importance what measures this board adopted, and he should take the liberty of making some suggestions resulting from his inquiries into the nature and mode of treating the disease on the continent, and his experience during the visit of the epidemic in 1849. Now was the time to make every possible effort to nip this disease in the bud, to prevent it spreading, to prevent alarm by showing the public it could be cured, to disarm public alarm, and take away the idea that this disease was overwhelming and struck down whomsoever it attacked. and that there was nothing could be done, that people were attacked at night and dead in the morning, whereas, generally, cholera was preceded by twenty-four or forty-eight hours of diarrhœa ; therefore the great object was to nip it in the bud, and it was highly to their credit that, in 1849, the system of house to house visitation was adopted, and certainly with such success that the disease was speedily eradicated in this town. But he should fail in performing his duty to this board and to the public if he did not state, without wishing in the least to inspire alarm, but only to excite vigilance and care—that in the parts of Germany which it had visited this year it had been unusually severe. In Germany and Poland, in fact, it had been more severe on this occasion than during its previous visits ; there were more attacks and they were more fatal ; and therefore, he repeated, without wishing to excite any alarm, he was anxious that at all events the amount of the evil should be appreciated by the fact that the present was the most severe visitation that had ever occurred in Europe. They had already had submitted to them, and had adopted, what he conceived to be excellent measures—in fact, he had nothing more to say than to recommend them to carry them out—carefully and early searching out all cases, by sending medical men into the houses and dwellings of the poor, to advise the poor, to prevent alarm amongst the poor, and point out the great importance of attending to the first stages of diarrhœa. And he did not speak without experience on this point, because in 1849 in London, when the preventitive system was originated and brought into operation in the middle of the great epidemic of that year, on the medical men going to the poor they were received with great thankfulness and they were glad to attend to their suggestions ; and the poor people said, "Oh, if you had come earlier, my father, or husband, or wife would have been alive, for "they were attacked with this complaint, and did not know the importance of attending

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"to it at once." There was confidence engendered by this visitation, which at once disarmed the epidemic of its terrors. Again, it was very important they should know precisely every night what was the precise course of the disease, and have the means of knowing what attacks occurred every day through the registrar of deaths, the medical officers, or other officers—to know precisely where they had occurred, because where cholera occurred probably there was a considerable amount of diarrhœa. They would thus know exactly from day to day the progress of the disease, for it would change its course, attacking one point and then another, and this would enable them to know where to plant their officers and direct their strength. He would state further that it was of great importance that there should be the most perfect confidence between the medical officers and this board; that each medical officer should be responsible for the proper attendance of his district, and receive such medical assistance as would enable him to do it efficiently, such assistance to be under the superintendence of the recognised medical officers; that every evening they should have an exact statement of all that had been going on during the day, and it was particularly and extremely important to watch the first stages of epidemic diarrhœa, before it had become cholera. That was in fact carrying out their own system, because prevention was the great object of this board, and liberality in carrying out this object would be the most economical also. Where they now expended pounds, it would save tens of pounds; nothing was so expensive as to neglect a severe epidemic, because every head of a poor family cut off left a permanent charge upon the parish. And this decisive and prompt action was the more important inasmuch as the eyes of England would soon be fixed upon this town, and they had an opportunity of setting an example of what could be done by this plan, and the towns of this country must be beneficially influenced by seeing that this disease could be controlled by prompt and efficient treatment. Now, they must well weigh what was the great object of this preventive treatment. It was to discover and arrest cases of diarrhœa, and with this view it was highly important that the labouring poor should be seen after they came home at night, and before they went out in the morning, in order that if diarrhœa should have occurred either before they came in from work, or during the night, it might be stopped before they got to bed or before they went out to work again, because these hours were the grains of life, and if they allowed it to go on for six or ten hours the time for cure was past. And if, over and above the medical officers whom they employed,—whether the gentlemen in practice or the gentlemen whom they might call upon for assistance,—there became the least difficulty in finding extra assistance, rather than allow the poor to be neglected in the diarrhœa stages, they would be perfectly justified in employing senior students,—because the treatment of this diarrhœa was not very difficult,—and with a medical school in this town they might obtain advanced students, who would be perfectly competent to treat it. What amount of extra assistance would be required they would learn from their medical men. Though a medical man himself, he might be excused for saying that he knew no men in this country who devoted themselves more zealously to assist and relieve the poor during the course of such an epidemic than the members of his own profession; and he knew some of them in this room who had not been in bed for two whole nights. Then the guardians might be sure they would exert themselves to the utmost to give advice as to what was right and proper, and as to what assistance should be granted to them, and it was essential to the public safety that it should be rendered. He would not touch upon the question of liberal remuneration, because he was quite sure he spoke in the presence of gentlemen who knew the value of such service, and it was highly important for the public welfare there should be perfect harmony and confidence between the board and their medical officer. He would observe also that it was of great importance that they should attend the poor at their own houses, and not have cholera hospitals, because very often the removal would give a fatal tendency to the disease. Then the sanitary measures which must be considered by either this board or the town council became of double importance. Now it seemed that just at this time their powers in this respect would soon be handed over to the town council; but he understood they still remained in their hands, and there must be no discussion as to who was to do it. One or the other, or both, must set to work to carry out the sanitary part of the business. There were, however, great difficulties in this town, which could be relieved by no measures this board could adopt, and amongst others there were few private water-closets amongst the poor, and the consequence was, the excreta of a large population were kept in pails or kits, as they were called, and turned into the street as he was informed. It was most important that this should as speedily and regularly as possible be removed: that must be obvious; and the scavenging must be most particularly and carefully attended to. But there was another subject bearing upon the welfare of the labouring classes, and that was the overcrowding in the dwellings of the poor. Now, he did not know any measure of greater importance towards removing the pre-disposing causes of disease than the prevention of overcrowding. It was one of the most difficult points in a town like this, but it was after all the most important of all with reference to the health of the population, that of overcrowding That was one of the most vital things as to the pre-disposing causes of cholera. It happened, very forcibly to show the truth of these things, that he had taken a few notes from Mr. Newton and other people, and he mentioned a house in which he had counted twenty people in one small room densely overcrowded, and here came another medical

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officer this evening, and stated there had been two cases of cholera in that place since this morning. Therefore it became a most important consideration what was to be done. There was an Act of the legislature to regulate this subject. He felt as deeply as any one the sacred character of an Englishman's house, and this was a regulation which did, to some extent, trench upon the principle, but it had been brought forward for the public good, and wherever brought into operation it had produced nothing but good. It was most remarkable the diminution of disease and fever,—and they would afterwards find of cholera,—which had ensued in all lodging-houses brought under the operation of this Act. The powers of this Act did not belong to this board, and was in the hands of the town council, but there might be members of the council, who were also members of this board, present.

" Mr. Ridley. Several.

" Mr. Grainger. And he really did not consider any point of more importance at the present time than a careful supervision of the lodging-houses in this borough, with a view to the prevention of that evil—overcrowding. There was another point he believed would be most beneficial, and that was the free use of lime-washing of houses and courts, which had been adopted in many towns, and might be done at a moderate rate by a few men going about from house to house—it had been done in Edinburgh for ninepence a house, and at the present time that obviously would be a thing of great importance. The only method of dealing with cholera was the seeking out from house to house of the diarrhœal cases, for he must say in conclusion,—however great and efficacious the discoveries and applications of medical science—for that form of cholera called collapse medical science knew no remedy.

" Mr. Grainger resumed his seat amidst applanse, and the chairman said he was sure the board would join with him in thanking him for attending here to-night, and for the information he had given to them—(*applause*)—and he hoped they would be able by his advice to stem the progress of this malignant disease.

" Mr. Newton said the Lodging-houses Act had not been put in force; but their vice-chairman (Mr. Ridley), who was also chairman of the watch committee, might move the suspension of the standing orders at the council meeting on Wednesday (the 14th September), and have the Act put into operation. Mr. Grainger's observations about the overcrowding of houses could not be too strong: it was really as bad as the middle passage.

" Mr. Ridley said it was his intention to move the suspension of the standing orders, with a view to having the Act brought into operation at once.

Mr. Jenkins, a parochial officer in the east district, gave some examples of the overcrowding in Sandgate. In one room 12 feet square, as many as 25 were huddled together lying among shavings. In the room a case of cholera had occurred, and in other rooms several cases of diarrhœa, and the parties were dead and buried.

" Mr. Hunter. How many houses are there of this kind?

" Mr. Jenkins. If you will go down with me to Sandgate about eleven or twelve to-night, you will find all the lodging-houses full. They come in from Walker, 400 of them, drunk, and mix up with those sick and bad.

" On the suggestion of Mr. Hamond, it was resolved that a few of these cases be collected and placed in the hands of Mr. Ridley for the use of the meeting of the council. On the motion of the same gentleman, seconded by Mr. Hunter, it was resolved to adopt the system of house-to-house visitation, and the medical men were requested to hand in a statement of what assistance would be required in order to enable them to do it. Eventually an assistant was appointed to each of the five medical officers, and it was arranged that steps be taken to obtain further the aid of sixteen medical students.

" Mr. Winship suggested the use of handbills to acquaint the people with the course that they should adopt at this crisis.

" Mr. Grainger said that handbills had been tried in many towns, but had been found insufficient; besides that they had a tendency to alarm the people. There was an apathy, which was a most important fact in connection with this disease, and seemed almost to be a part of it, so that however people might be warned they would neglect the diarrhœa. In Posen, the police were employed day by day to go round and urge the people to go for medicines; but they still neglected, and therefore it was necessary, if they wished to arrest the disease, that the visitations should be carried on by medical men who would have medicine in their pocket, and he narrated some instances of the success which in other places had followed such a mode of treatment. The guardians separated about ten o'clock.

" The epidemic continued to prevail during Sunday and Monday (the 11th and 12th September); on the evening of which latter day the board of guardians again met, when Mr. Ingledew occupied the chair, and, in the absence of the clerk (Mr. G. Forster), who had been attacked with diarrhœa, Mr. Ridley officiated. From the statement of the medical officers, the disease appeared to have increased since Saturday night, and to be still on the increase, and lists were handed in showing the number of cases and the deaths from the commencement up to that time:—from

St. Nicholas' District.

Cases	31	Deaths	18

All Saints' District.

Cases	51	Deaths	31

St. Andrew's District.

Cases	13	Deaths	2

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Byker District.

Cases	- - - - 24	Deaths	- - - 6

Westgate District.

Cases	- - - - 26	Deaths	- - - 26

showing a total of 155 cases, and 70 deaths; with respect to diarrhœa the cases were described as being so numerous that an account of them could not be kept; and it appeared that the medical officers had been out constantly, engaged almost night and day, and that their surgeries had been crowded for medicines almost beyond their ability to supply.

"The list of cases having been read, the board inquired to what extent the amount of assistance ordered on Saturday night had been supplied. It appeared that some seven or eight students were still required, and further steps were taken to supply the deficit. On the suggestion of constituting Mr. Proctor dispensing chemist in Collingwood Street,—

"Mr. Newton, who had made a list of valuable suggestions on Friday, proposed the following, the board by their applause when the suggestion as to water was read marking their emphatic concurrence:—

"'1st. That the board, or its medical officers, be directed to draw out a notice to the public calling their attention to the importance of checking diarrhœa, however slight, and that a cheap medicine be recommended to be prepared by all druggists. At present the public mind is in a state of panic, and the working classes are willing to provide themselves with medicine, but they don't know to whom they can apply.

"'2d. That the relieving officer be provided with medicines for adults and children, to be given with a short printed direction to every pauper; this measure will not cost 2*d.* per case; and that the Roman Catholic and other clergymen be requested to impress upon their respective people the necessity for a provision against sudden attacks.

"'3d. That all manufacturers employing large numbers of workpeople be desired to see every workman in their employment provided with a little medicine.

"'4th. That it is desirable to draw the attention of the government inspector to the state of the water at present used for dietetic purposes by this large community, as calculated of itself to cause diarrhœa and dysentery, and to aggravate, if not partly to cause, the epidemic condition from which the town is suffering. The causes of cholera must be sought for in the contamination of some one of the great necessaries of life—food, air, or water.—and it can be rationally combated only by making all these three as pure as possible.

"'5th. That these measures, as well as others that might be devised, be carried out contemporaneously with house-to-house visitation.'

"Mr. Grainger intimated that he considered these suggestions to be very valuable; but he must state to them that the object he had in view was simply to suggest the various preventive measures he had found most efficient in checking cholera, and the responsibility of the medical treatment must rest with the medical officers of the board, but he would be most happy to meet with them and state his views, and if these met their sanction he would be most happy if some medical formulæ went forth with their sanction. Mr. Grainger, on the question of the propriety of issuing general directions as to where the poor people might apply for advice and medicine, said that the epidemic had reached a stage when such a public intimation would be calculated to allay rather than increase alarm, and it was resolved that it should be drawn up and issued. It was intimated by Mr. Pearse, on behalf of the dispensary, that that establishment would be open day and night for the purpose of affording medical aid, which would be done without the applicant being required to have an order. Mr. Gibb, the house surgeon of the infirmary, also intimated that infirmary cases would be admitted at all times. Mr. Newton further urged the importance of issuing a prescription, which everybody might use, and pointed out that it would meet the necessities of the public who, at present, were at a loss where to go and what to do; but, excepting what had been already stated, the matter was waived for the present.

"The Rev. C. Moody, the vicar of Newcastle, who was present, said he knew, as a clergyman in the habit of mingling among the poor very much, that they were under the impression that they could get no medical relief without an order from the relieving officer, and they would be under the same impression with regard to this cholera. He would, therefore, suggest that some notice should be published relative to this point, giving the names of the medical men to whom application should be made, and of the chemists from which medicines might be had. He thought that would facilitate the labours of the medical men considerably, and enable them to concentrate their efforts in dealing with the disease. As vicar of Newcastle also, he should be glad to-morrow to call upon the clergy of the town to meet him on the subject, and if they would forward to him the names of the officers of the several districts, with the names of the chemists' shops where medicines might be got, they would endeavour to make it as widely known as possible.

"Among other matters referred to, was the progress of sanitary precautions, in connection with which Mr. Grainger referred to a visit he had made through Sandgate on the previous day, and gave a melancholy account of the filth and defective sanitary arrangements which prevailed; he said he had found rooms and houses unfit for human

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habitation, and which should be forthwith closed by the authorities under the new Act. It was intimated that lime-washing of the houses, and clearing away of the nuisances and washing of the lanes, in the infested districts, especially in the lower parts of the town, was in progress; and two additional inspectors of nuisances were now appointed to assist in attending to that department of sanitary precaution. Mr. Grainger remarked, in the course of his observations, that every gentleman must regret that so many of these measures had not been adopted till under the pressure of epidemic.

"Tuesday (the 13th September) brought no alleviation of the disease, and in the evening the reports of the medical officers gave 86 new cases of cholera and 34 deaths, besides innumerable cases of diarrhœa, which had been treated and thereby impeded in their progress to cholera. At this meeting the proof of a large handbill containing some few directions and supplying the names of the medical officers and chemists' shops where advice and medicines might be had was submitted, but nothing appeared to be done with it excepting to add the name of a chemist or two to the list. Mr. Newton wished some medical formula to be issued in it, in accordance with his suggestion on the preceding evening, adding that people were looking for some authoritative medical prescription which they might depend upon, and obtain at a cheap rate, say 1*d.* or 2*d.* anywhere. He referred to a statement already issued by the Board of Health, and though he did not agree with Dr. Grainger that there was no remedy for collapse, their adoption and issue of that statement might be very advantageous now. Mr. Grainger observed that though he agreed with Mr. Newton as to the correctness of the prescription referred to, and thought its general adoption might be advantageous, yet it was rather a delicate point to prescribe a uniform mode of treatment to their medical men, whose mode of treatment might be in some respects varied according to a variety of circumstances. At the same time, should it be resolved to issue such a prescription, he should be happy to co-operate with them. No formal resolution was however come to, and the remainder of the evening was spent in discussions on various points, and in completing the required contingent of medical assistance required by the medical officers.

"Wednesday (the 14th September) appeared to be more deadly than any preceding day, there being reported in the evening by the medical officers of the guardians upwards of one hundred new cholera cases, and nearly fifty deaths. A resolution had been passed on Monday evening that the registrars should furnish every night a return of the deaths registered from diarrhœa and cholera. But it was not till Wednesday evening that it was supplied, bringing the returns up to five o'clock the same evening. The total reported from August 31st to September 14th was 198 deaths from cholera, and 16 from diarrhœa, making 214 in all. But as probably some had occurred in the course of the day, which would not be registered until the following or subsequent day, the above numbers are no doubt rather under than overstated. The return, of course, is not confined to the cases attended by the guardian officers, but includes the deaths in the whole town.

"Mr. Grainger addressed the board at some length—in the course of which he intimated that the epidemic did not appear to be on the decrease. The general report of the medical officers showed that there was a vast amount of bowel complaints existing among all ranks of society; but at the same time it was most satisfactorily proved that the disease could be easily controlled in its first and milder indications. Notwithstanding the numbers that had already fallen under its power, and although it was most painful to see so many cut off by it, yet it was still a matter of infinite gratitude to God, that in so large a population as in this town, so many had been spared in the very midst of the havoc going on around them. He must also further state that he thought that the measures adopted by that board had been the means of saving many lives. The evening previous he went along with Mr. Newton to the most infected district of the town, and he there ascertained in many cases that where the disease had been taken in its early stages it had passed off. In every part of the town indeed, by the perseverance and energy of the medical officers, many lives had been saved, and a great many more would have been preserved, if attention had been paid to the disease at the beginning. As to the medical profession, they had been employed early and late, and, as many of them were almost exhausted, it was requested that some additional assistance should be got to relieve them in their duties. Some conversation ensued, and it appearing that all the medical students in the town were already engaged, Mr. Grainger was authorized to write for four from Edinburgh.

"Dr. Robinson said, that he coincided with all that had fallen from Mr. Grainger, and that the medical profession were much indebted to him for the valuable services he had rendered them since his arrival; but he much regretted that the General Board of Health had not acted upon the recommendations he sent up to them last week. Among the steps taken to repress the epidemic, one means was to consider the peculiar state of the atmosphere, which was in some measure kept up by the physical impurities allowed to accumulate at different parts of the town, and the removal of them required some care and attention. One other physical predisposing cause in propagating the epidemic was the impurities in the water consumed by the people. (Hear, hear.) In some places, in the earlier periods of the epidemic, it had been ascertained that whole families had been affected with diarrhœa in consequence of the unwholesomeness of the water; and he would urgently impress upon the board the necessity of some immediate complaint to the water company. He knew not whether any steps had been taken in the matter, but it

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was absolutely requisite that it should be obtained from a purer source than the present. (Applause.) He had that day been shown water from the taps which contained sufficient impurities in it to produce diarrhœa. (Hear, hear.) Under these circumstances, some communication was called for from that board to the Whittle Dean water company.

"Mr. Furness exhibited a bottle of the water which had been handed to him; and several guardians complained of the unwholesome condition of the present supply.

"Mr. Newton observed that there were also other causes in operation besides bad water to produce the present state of things; and he would like to know from Mr. Grainger whether or not he was prepared to take into his consideration the entire matter relating to sanitary improvement. The question, he considered, was of vast importance, as the public health must be protected. He thought, therefore, that the present state of things ought to be met promptly.

"Mr. Grainger observed, that it was of vast importance to have a supply of good water; and in order not to defer business, he would direct the attention of the board to the subject before it broke up.

"Mr. John Clayton said that he thought the water company were scarcely in a position to remedy the evil complained of just now. It was well known that the source of supply at Whittle Dean was exhausted, and the company were obliged to take it from the Tyne or not supply the town at all; and in that position they must remain until proper works were established to filter the water. It was evident that the company must have made some mistake either about the supply or demand when they commenced the Whittle Dean works.

"Dr. Headlam next called attention to the great inconvenience felt in burying the dead from the want of proper places of interment. At the Ballast Hills the place was overcrowded, and some coffins had to be put upon others; and the same remark might also apply to the parish church-yards in the town. The question for consideration was, as to where a cheap and proper place could be provided.

"Some conversation ensued, both as regarded the propriety of suitable places of interment being found, and also as to the propriety of having houses of refuge fitted up for the residence of the healthy portion of an infected family, and the erection of encampments was suggested; but Mr. Philipson suggested that this was scarcely necessary, and the further consideration of the subject was deferred.

"A deputation of the council, including Mr. Clayton, Mr. Philipson, and Dr. Headlam, was introduced by the Chairman, who stated that the sum of 500*l.* had been put at the service of the guardians by the town council, to be used in measures independent of those for which the funds of the board were applicable in the present emergency.

"The medical officers had by this time left; many of the guardians had also gone, the rest were leaving; and the chairman was just about to vacate the chair, when

"Mr. Grainger rose and said, he should like to state before they left the room, with respect to the water question, that he fully agreed in the opinion of the medical gentlemen who had addressed the guardians on the subject, that if the water be of the quality described, and if it be taken from the river Tyne, into which the sewerage of the town goes, it could not be suitable and fit for domestic purposes, but must be most injurious; for it was a well-ascertained fact, in a number of instances in which the water used had been fouled by the sewerage, that it had been a predisposing and aggravating cause of epidemic in the attack of 1849; and if the water used in Newcastle be of the foul character described by Dr. Robinson, and corroborated by other gentlemen, the sooner a remedy be applied by the water company the better it would be for the town.

"Mr. Philipson: Can not you pass a resolution expressive of that opinion?

"Mr. H. Glynn: That would be throwing the onus upon the company.

"Mr. Philipson: You hear the medical officers tell you the water had a great deal to do with the epidemic; and I think if such be the complaint respecting it, let the company assume the responsibility, and take it upon their shoulders.

"Mr. Ridley suggested that the guardians wait upon the directors on the subject.

"Mr. Hamond thought it would be better to send a letter; for there was no doubt a great deal of the disease was occasioned by the impurity of the water. He would propose, therefore, that a letter be written to the Directors of the Whittle Dean water company, informing them of the opinions of the medical officers as well as of Dr. Grainger, as to the impurity of the water; that some measures ought to be taken forthwith to remedy the same; and, if necessary, a deputation from the board would be glad to meet the directors on the subject.

"Mr. Hunter seconded the motion. He thought the directors had broken faith with the public. They had used the water that belonged to the town in supplying manufactories; he believed one manufactory alone consumed more water than was consumed by the whole town under the old company, and the Tyne was used to supply what the town ought to have had from Whittle Dean.

"Mr. Grainger said it was not to be understood that he made any charge against the company. What he said was if the water was such as had been described by the medical gentlemen it was very deleterious.

"Mr. Glynn objected to any letter at all.

"Mr. Ridley (the chairman): You may object as long as you please.

"Mr. Hamond: And you can sleep upon it.

"Mr. Glynn: I say the letter is not true, and I object to it.

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"The Chairman: Do you wish your objections recorded?

"Mr. Glynn: Certainly I do.

"The Chairman (to the clerk): Then record that Mr. Glynn says the medical gentlemen do not speak the truth.

"The motion was then put and carried, and the meeting broke up.

"Thursday (the 15th Sept.) brought with it no abatement of the epidemic. On the contrary, it seemed to be on the increase. Considerable gloom pervaded the town, increased, ever and anon, by the tolling of the funereal bell. In the course of the day lime was dusted over many of the streets, and the cleansing operations were proceeded with in various directions. Night and day medicines were supplied by the various druggists in the town; and, in the morning, the placard, which had been in course of being prepared for the previous three days, was issued by the board of guardians, in order to remove alarm, and to inform the poor how to obtain medical aid as early as possible. The following is the document:—

"'Cholera *is not so fatal* as is supposed; it may, if proper medicines are obtained, be stopped.' It comes on with *looseness or bowel complaint*,' which continues for a day or two. *There is often no pain*; but no one must be put off his guard by this circumstance, but must *immediately*, when purging comes on, apply for proper medicine, by which *the disease may, with a few exceptions, be cured*. Cholera is often brought on by eating fruit, such as *plums, apples, &c*—also *green vegetables*—all these should be avoided at present; and also *fermented liquors* in excess, as drunkards and tipplers always suffer most. Great caution is necessary in the use of purgatives; and none should be taken unless by the direction of a medical practitioner. Medical attendance and medicines for the poor can be got, *free of all expense*, and without orders from the relieving officers, or letters from the dispensary or infirmary, at all hours, night and day, at the following places:—

"'The Dispensary, Nelson Street; the Infirmary.

"'District No. 1.—Mr. Winship, Percy-street: Mr. Preston, Bath-row, Westgate; Mr. Proctor, Chemist, Collingwood-street.

"'District No. 2.—Mr. Newton, Hood-street; Mr. Allison, Regent-terrace; Mr. Swan, Chemist, Pilgrim-street.

"'District No. 3.—Mr. Harvey, 30, Newgate-street; Mr. Irons, Northumberland-street.

"'District No. 4.—Mr. McNay, 9, Gibson-street; Mr. Burley, Richmond-street; Mr. Thornton, Chemist, Gibson-street; Mr. Brown, Chemist, Ouseburn.

"'District No. 5.—Mr. Sang, 1, Charlotte-square; Mr. Boyd, Marlborough-crescent; Dr. Burnup, Derwent-place; Mr. I'Anson, Arthur's-hill; Mr. Turner, Chemist, Westgate; Mr. Reed, Chemist, Arthur's-hill.'

"The board of guardians again met in the evening; and on the medical officers' returns being examined, it appeared that there were ninety-eight new cases and fifty-seven deaths; while, in addition, an announcement was made by Mr. Smith, Surgeon, of Walker, that the cholera had broke out at St. Peter's that day, and that in thirty cases four had passed into collapse. The cases above-mentioned comprise, of course, only those which came within the province of the board. The entire deaths registered from the previous evening, including those above, were reported as being ninety-seven from cholera, and four from diarrhœa, being 101 in all. The annexed is the return of the registrar of the deaths from cholera and diarrhœa from the commencement up to Thursday evening.—

Dates.	CHOLERA.						DIARRHŒA.						Grand Total.
	All Saints'.	St. Nicholas'.	St. Andrew's.	Westgate.	Byker.	Total.	All Saints'.	St. Nicholas'.	St. Andrew's.	Westgate.	Byker.	Total.	
August 31 - -	-	-	1	-	-	1	-	-	-	-	-	0	1
September 1 - -	-	1	-	-	-	1	-	-	-	-	-	0	1
" 2 - -	-	-	-	-	-	0	-	1	-	-	-	1	1
" 3 - -	3	-	-	-	-	3	2	-	-	1	-	3	6
" 4 - -	-	-	-	-	-	0	-	-	1	2	-	2	2
" 5 - -	-	-	-	4	-	4	-	-	-	-	-	2	6
" 6 - -	-	5	-	1	-	6	-	-	1	-	-	1	7
" 7 - -	-	3	2	1	-	6	-	-	-	-	-	0	6
" 8 - -	-	1	-	3	1	5	-	-	-	-	-	0	5
" 9 - -	8	1	4	7	-	20	-	-	-	1	-	1	21
" 10 - -	7	4	3	3	-	17	1	1	-	1	-	3	20
" 11 - -	12	5	2	2	-	21	-	-	-	-	-	0	21
" 12 - -	6	8	6	7	2	29	2	2	-	-	-	2	31
" 13 - -	10	7	4	4	2	27	2	2	-	-	-	2	29
" 14 - -	18	22	6	7	5	58	-	-	-	1	-	1	59
" 15 - -	23	31	18	20	6	98	-	-	2	1	-	3	101

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"Mr. Grainger, after hearing the returns from the medical officers, observed, that from the considerable height which the epidemic had assumed, it was necessary to know that it was not merely on the increase, but also, that in its early stages it could still be successfully grappled with; in proof of which, out of eight returns, seven fully corroborated the fact of the success attending the adoption of proper measures on seeing the premonitory symptoms. It was most vital to let the public know that, in order to show them the propriety of attending to the first symptoms. The returns of deaths during the last twenty-four hours, as recorded by the registrars, was 97 from cholera and 4 from diarrhœa, making in all 101 deaths. After adverting to the indispensible necessity of having additional medical assistance, either from the students of Edinburgh or London, as the applications from the sick were so numerous that they could not be answered—he said, under the exigencies of the time, it would be well to make some arrangements with the various legal practitioners of the town, to authorize them to render aid when called upon. Whatever expense might be incurred, he believed that, in a measure, it would be met by the town council, or contributions from London and other places. It appeared to him that, in the present state of the disease, a number of gentlemen should be selected from that board to confer with the town council on the subject. He recollected that on the day previous, he named to some of the Town Improvement committee that it would be a measure of great advantage, in severe visitation of the cholera, for tents to be erected in suitable places, so that in districts suffering most from it, the healthy part of the community should be placed in them for a time. It was no new measure, as it had been tried in 1849 with considerable success; so much so, that the persons removed were preserved from its effects. He therefore thought it his duty to submit this plan to the careful consideration of the board. But, further, the question was one which had been viewed in so important a light, that he had instructions from the Board of Ordnance to furnish gratuitously the use of such tents. Whatever might be the alarm arising from the adoption of such a course, it should not be put against the vast importance of saving life. The scheme had often been resorted to in saving the life of the army in India; and it was invariably the rule when an epidemic broke out, the army was instantly removed to a healthy locality. If once adopted, he felt confident it would tend to calm the alarm of those connected with the pestilential districts; but they must bear in mind that not a man, woman, or child, had to be removed against their will. The entire country would have their eyes fixed intensely on what was going on in the town; and it was due to the safety of the town as well as the country at large, that what he suggested should be immediately taken into consideration, for the purpose of adoption.

"Mr. Newton said, it was clear that the medical staff could not go on without assistance; and he entirely agreed with the suggestion of Mr. Grainger, as to the medical officers being authorized to make arrangements with other medical practitioners in the town to obtain their assistance.

"Mr. Philipson then moved and Mr. Richardson seconded, that the medical officers of that board, at the head of each district, be authorised to employ any medical gentleman they thought proper to assist them, the board undertaking to pay them.

"The motion was then put and carried.

"Mr. Hamond, being desirous to hear the returns from the medical officers of that day, begged Mr. Grainger to read them to the board.

"Mr. Grainger replied that he had no objection, although the returns were far from being perfect. He then read the returns which showed that of upwards of 300 cases treated in the early stage, only eight had gone into collapse, than which he said no better argument could be urged in favour of the measures that had been adopted; and no greater ground for confidence, or inducement to watchfulness and promptitude could be mentioned. It was also stated that various patients who had previously gone into collapse, had recovered, or were recovering under medical treatment—a fact which indicates that the disease was assuming a milder character.

"Some conversation ensued as to the best course to adopt for the future; after which a committee was appointed to confer with the cholera committee of the town council, on the propriety of tents being erected at suitable places for the removal of the healthy portion of a household from the sick. The board then adjourned.

"In connection with the proceedings of the board of guardians may be mentioned that, arising out of the opening of some of the churchyards for interments, a deputation waited upon the vicar on Thursday afternoon—when the rev. gentleman promised to call the clergy together to consider the propriety of closing them for the present; but, if this is determined on, it is evident that some proper plot of ground ought to be selected, to dispose of the dead in a suitable manner. The committee of the town council also met on Thursday, and, on a representation being made regarding the crowded state of the church-yards and, on the improper mode of interment of cholera sufferers, especially with reference to St. John's Church, where the graves were only between two and three feet deep—it was agreed that a letter should be sent to the churchwardens of each parish, apprising them of the state of things, and that in the course of twelve months after the Act of Parliament just passed, they would provide new places of interment outside of the town. A letter was also read by Capt. Weatherley, from Mr. Thompson, governor of the gaol, apprising them that there were 31 cases of diarrhœa, and 4 deaths; and that some measures ought to be adopted to procure pure water. Some conversation took place respecting the Whittle

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Dean water company, and it was stated that water from the Pont had been directed into the company's pipes, and that the supply appeared of a clearer and, more satisfactory character. Ultimately it was agreed to wait upon the company, and after various measures to promote sanitary improvement had been discussed, the committee adjourned."

485. Are you cognizant of the fact, or is it a correct statement of the course of procedure usually adopted by the Board of Health and its officers, that they devote too large a proportion of their attention to those who are not already seriously affected, and too little to those that are?—No; so far from that being the fact, it is my duty to state and to show, that the instructions of the Board of Health to its medical inspectors are these: that those who are in an advanced stage of the disease should have the best medical advice; namely, that of the medical officers, and of the surgeons appointed as their assistants; and that the visitors, or students who conduct the house-to-house visitation, should merely take the simple cases; and where persons, who have been attended by senior students, are passing, or appear to be passing, into the stage of collapse, the instructions of the students have been to hand them over to the treatment of the medical officers.

486. Did you make any suggestion to the board of guardians, with a view to providing houses of reception for the corpses of deceased victims, with a view of separating the dead from the living?—None further, as I remember, than the most speedy interment of the dead.

487. You did not recommend any houses of reception?—No, I do not think that I did.

488. Is that one of the standing instructions of the Board of Health to their superintending inspectors; or was it a special instruction to you in this matter to make such a suggestion?—I had no special instructions whatever; and it is not a standing instruction of the Board of Health. It is a recommendation of the Board of Health with reference to interment, that there should be houses of reception for the dead.

489. But, in connexion with the circumstances of an epidemic, they do not issue instructions to their superintending inspectors to recommend such an arrangement?—No, I have never received such an express instruction.

490. I am pressed to ask you whether the Board of Health are responsible for the issue of orders by the Privy Council, putting in force the extraordinary powers of the Nuisances Removal Act?—Not at all, except in so far as they do or do not properly represent the existence or the threatening of serious epidemic disease.

491. Did they do so?—They did; and I think it is right to myself to state, as it has been made a charge against me, that I was occupied two or three days in obtaining medical evidence, as to whether the cholera was epidemic in Newcastle or not; that I arrived in Newcastle at six o'clock on Saturday morning, and that, at twenty minutes past one on that day, I sent this telegraphic despatch to the Board of Health: "On medical authority, cholera is epidemic here." Now I state that, because the declaration of the existence of epidemic cholera was a very weighty and responsible matter, for it involved, as I knew, the probable issue of the Order in Council; and when that was done, it might have happened, as it had happened before, that various countries in Europe should have put the whole of England into quarantine, in consequence of the issue of that Order in Council; and it was a very serious thing for me to make a representation to the government that cholera was epidemic in this town, which I did seven hours after my arrival.

492. I am requested to ask you whether you know under what authority the Board of Health sent you down here to inquire into the circumstances of the threatened or anticipated outbreak; was it under their usual authority or otherwise?—I think it is right to the Board of Health, and also to myself, that it should be known that I am not a permanent officer of the Board of Health, and that I cannot be employed by the Board of Health without the superior authority of the Government. But before Dr. Robinson's letter came, that is to say on the 30th day of August, I was instructed by the General Board of Health, upon their own responsibility, and without that superior authority, to make inquiries into cases of cholera that had occurred in London, to know whether it were epidemic or not; and the evidence, that I received from the medical officers in London, was that it was not epidemic. Dr. Robinson wrote to the Board of Health on the 2d of September, stating that some cases of cholera had occurred here; and I know that Dr. Robinson's letter was received by the Board of Health on the 3d, and that they immediately communicated its contents to the Government; and after some further inquiries and correspondence, I was sent down here on the evening of Friday, the 9th, upon the discretionary authority of the Board of Health, in consequence of a communication having been received indirectly from Dr. Glover, a physician in this town, to the effect that the cholera had increased in Newcastle.

493. Are you aware that immediately after they had adopted that discretionary step, the General Board of Health applied to those superior authorities for their sanction of the step so taken; and that such sanction was given, as shortly thereafter as official correspondence would allow?—All that took place.

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(The witness afterwards handed in, in confirmation, the following extracts of minutes and copies of letters) :—

Extracts from the Minutes of the General Board of Health.

30th August 1853.

Read :—Reports of Cholera cases from the Registrar General.

Report of case of Sporadic Cholera at Stourbridge.

Report of cases of Cholera and Diarrhœa reported in common lodging-houses, communicated by Captain Hay.

Ordered.—That in the last two cases the ordinary inquiry be directed, and that in the first case, Mr. Grainger be requested to inquire into the particulars, for the information of the Board.

Letter from George Robinson, M.D., to the Secretary of the General Board of Health.

"26, Eldon Square, Newcastle-upon-Tyne.
2d September 1853.

"Sir,—I do not know whether the General Board of Health contemplates any active interference in districts which may be the seat of a visitation of cholera, but as this town is now threatened by an outbreak of the disease in a malignant form, I think it my duty to state, for the information of the Board, that I yesterday saw a fatal case, which presented every symptom of the most intractable form of the disease.

"The victim, a young woman aged twenty-four, residing at Bill Quay, a village situated on the south bank of the Tyne, about three miles below Newcastle, was attacked with simple diarrhœa on Monday ; and on Wednesday, while still suffering under this complaint, she came to Newcastle by a steamer, and while landing fell on the ground from weakness. On being assisted to the house of her relatives, who are in but indifferent circumstances, she was found to be suffering severely from vomiting, diarrhœa, and painful spasms of the legs and abdomen. Mr. Birly, a surgeon residing in the neighbourhood, was sent for, and supplied the usual medicines ; he found the face and extremities cold and livid, the breath also void of natural heat, the pulse scarcely perceptible, and the peculiar corpse-like expression of the countenance. The evacuations resembled weak broth or water in which meat had been boiled, being light coloured with shreds of mucus. On the following day (Thursday), I was requested by him to see her, and found her in a state of deadly collapse, with the unmistakeable countenance of malignant cholera. From this state nothing could rouse her, and she died last night.

"At the eastern dispensary in this town, with which I am connected, and which embraces some of the poorest and most unhealthy districts, I yesterday found cases of diarrhœa to be unusually frequent and severe, even for the season ; and I have just been summoned to a child in whom the choleraic symptoms also indicate a fatal termination.

"Under these circumstances, I trust the Board of Health will excuse me for troubling them with the above-mentioned facts ; but, from the geographical position of Newcastle and its notoriously defective sanitary condition, I cannot but be apprehensive that an epidemic visitation of cholera, under existing circumstances, may be productive of a fearful loss of life. I shall, therefore, feel obliged by your directing the immediate attention of the Board to the subject, and have the honour to remain,

(Signed) "GEORGE ROBINSON,
"Member of the Royal College of Physicians."

Letter from the Assistant Secretary of the General Board of Health to Dr. Robinson.

"The General Board of Health, Whitehall,
"5th September 1853.

"Sir,—I am directed by the General Board of Health to acknowledge the receipt of your letter of the 2d instant, and to thank you for the information contained in it.

"The Board will be much obliged by your furnishing them with information from time to time, of any cases of Cholera which may come under your notice, or of any unusual prevalence of that class of complaints which precede or accompany Cholera.

"The Board are anxiously watching the progress of Cholera on the Continent, and making the closest inquiry in their power into cases occurring in this country.

"I am, Sir, &c., &c.,
(Signed) "T. TAYLOR."

Letter from the Assistant Secretary of the General Board of Health to H. Waddington, Esq., Home Office.

"The General Board of Health, Whitehall,
"3d September 1853.

"Sir,—I am directed by the General Board of Health to state that they have received returns from the Registrar General, of various cases of Asiatic Cholera, reported as having occurred in London and in the country, and further from the Commissioners of Metropo-

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litan Police, of cases of Cholera and Diarrhœa, reported as occurring in common lodging-houses. They have also to-day received a report from Dr. Robinson, a physician of Newcastle-upon-Tyne, of a fatal case of Asiatic Cholera in that town. His letter (a copy of which is appended), states an unusual prevalence of Diarrhœa in Newcastle, even for this period of the year.

"The very wide-spread prevalence of the disease in its epidemic form on the Continent, and especially in Berlin and Hamburgh, induce the Board to regard all indications of the presence of Cholera in this country with anxiety, although the cases themselves are sporadic, and do not amount in any part of England, as to which the Board have received information, to an epidemic outbreak. The Board, under these circumstances, are carefully watching the reported cases; and I am to append, for the information of Viscount Palmerston, the Report of Mr. Grainger, on the cases included in the Registrar-General's Report, inquired into by him.

"I have the honor to be, &c., &c., &c.,
(Signed) "T. TAYLOR,
"Assistant Secretary."

"To H. Waddington, Esq., &c., &c.
"Home Office."

Extracts from the Minutes of the General Board of Health.

"3d September 1853.

"Read,—Letter from Dr. Robinson, Newcastle-upon-Tyne, reporting a fatal case of Asiatic Cholera, and stating the unusual prevalence of Diarrhœa in that town.

"Ordered,—That a Letter be sent to the Home Office stating the reports of cases of Asiatic Cholera received by the Board, and enclosing a copy of Dr. Robinson's letter and of Mr. Grainger's report on cases included in the Registrar-General's report to the Board, and inquired into by Mr. Grainger; and that Viscount Palmerston be informed, that though the Board consider these cases sporadic, and that in no place in England, of which they have accounts, can the attacks be considered to amount to an epidemic outbreak, yet that the spread of the disease on the Continent, and its presence in an epidemic form at Hamburgh and Berlin, induce the board to watch all cases of it here with anxiety, and to feel strongly the importance of all cases being immediately investigated, whenever practicable."

"Ordered further,—That a copy of this letter be sent to Sir William Molesworth.

"Friday, 9th September.

"Read,—A Letter from Dr. H. Gavin, forwarding a letter from Dr. Glover, Newcastle-upon-Tyne, announcing the appearance of Cholera there, and requesting the attendance of Dr. Gavin, with authority from the Board, if possible.

"Read also,—A Letter from Dr. Greenhow, Chairman to the Local Board of Health, Tynemouth, announcing the same facts.

"Ordered—That as from these communications, and the intelligence contained in the local papers, it appears that an unusual and alarming number of fatal cases, represented as Asiatic Cholera, have occurred in and about Newcastle; and as the presence of cholera at Hamburgh, certain parts of Sweden, and other places on the Baltic, appears to the Board to justify the apprehension of its appearance in this country, where it has always hitherto become epidemic within a short time after breaking out in an epidemic form at Hamburgh—Mr. Grainger be directed at once to visit Newcastle, and report to the Board on the alleged cases of cholera and the health of its locality, with reference to that disease.

"Ordered further—That information be sent to the Lords Commissioners of Her Majesty's Treasury, that the Board have taken this step, from a conviction that it is their duty to procure information, on which they can rely with reference to this alleged outbreak of Asiatic Cholera—with a view either to the removal of public apprehension, should the report be found without such foundation as may warrant alarm; or, if it should be well grounded, of taking all the precautionary measures in their power.

"10th September 1853.

"Read—Telegraphic despatch from Mr. Grainger, announcing that, on medical authority, cholera is epidemic at Newcastle.

"Ordered—That a copy of the despatch be appended to the letter to the Treasury, informing them that the Board have despatched Mr. Grainger to Newcastle.

"Ordered further—That a copy of the letter and despatch be sent to Sir Wm. Molesworth.

"Monday, September 12th 1853.

"Read—Telegraphic despatch from Mr. Grainger, at Newcastle-on-Tyne, stating 73 cholera cases on Saturday and Sunday, exclusive of those dealt with in private practice at Gateshead, and 27 deaths.

"Ordered—That on receipt of a letter from Mr. Grainger explaining the despatches, information be sent to Viscount Palmerston and Sir W. Molesworth.

"Read—Report from Mr. Grainger, with appendix of evidence from medical practitioners at Newcastle-upon-Tyne, showing the undoubted presence there of epidemic cholera in a very severe form.

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"Ordered—That copies be directed to be made for—
"The Privy Council Office,
"The Home Office,
"The President of the Board,
"The College of Physicians,
"The Poor Law Board, and
"The French Consul General.

"That a letter be sent to the Privy Council Office, with the report of Mr. Grainger, submitting that the time has arrived for issuing an Order, under the Diseases' Prevention Act; there being now present in the United Kingdom a formidable epidemic disease, requiring measures of precaution to be taken suited to the emergency.

"13th September 1853.

"Read,—Second report from Mr. Grainger on Cholera at Newcastle and Gateshead.

"Ordered—That copies be sent to the same addresses as yesterday; and that the attention of the Privy Council be called to the obstructions to medical preventive arrangement, already beginning to be felt, in the absence of an Order in Council."

Letter from T. Taylor, Esq. to C. C. F. Greville, Esq.

"13th September 1853.

"Sir,—I am directed by the General Board of Health to request that you will lay the accompanying letter from this Board before Her Majesty's Most Honourable Privy Council.

"To Her Majesty's Most Honourable Privy Council. "13th September 1853.

"Gentlemen,—I am directed by the General Board of Health to state that, while they have watched with great anxiety the progress of epidemic Cholera from Persia to Russia, and its spread to the north of Germany, Denmark, and Sweden, they had regarded with still greater apprehension its outbreak at Hamburgh, since it has never yet been prevalent in that city, without shortly afterwards appearing in England. They now grieve to have to state that they have received information of a violent outbreak at Newcastle; that fatal cases are also reported by the Local Board as having occurred at Hexham and Morpeth; and that other towns in the neighbourhood are in a state of great apprehension. The Board are satisfied, from past experience, that measures of precaution, promptly taken, are not only attended with a great saving of life, but are most effectual in preventing panic, one of the most powerful predisposing causes of the disease. I am directed to forward the report of Mr. Grainger, one of the Board's medical superintending inspectors, from Newcastle-upon-Tyne, together with the evidence of the medical practitioners of that town, showing, beyond a doubt, the presence of Asiatic Cholera there in an epidemic and very severe form. Under these painful circumstances, the Board feel it their duty to submit that the time has arrived for issuing an Order in Council, under the 10th section of the Nuisances' Removal and Diseases' Prevention Act, 1848; a part of the kingdom being attacked with formidable epidemic disease, requiring measures of precaution to be taken with promptitude, according to the exigency of the case.

From T. Taylor, Esq. to C. C. F. Greville, Esq.

"The General Board of Health, Whitehall,
"13th September 1853.

"Sir,—I am directed by the General Board of Health to forward, for the information of Her Majesty's Most Honourable Privy Council, a copy of a second despatch on Cholera at Newcastle, received by this Board from Mr. R. D. Grainger. I am to request that you will direct their Lordship's attention to the marked passage which shows the obstructions which are already beginning to be felt from the deficiency of powers of boards of guardians—a deficiency which could at once be removed by regulations by this Board, under an Order in Council, issued on the authority of the 10th section of the Nuisances' Removal and Diseases' Prevention Act, 1848; but which, failing such an order, neither local or central authority can supply."

From T. Taylor, Esq. to H. Waddington, Esq.

"The General Board of Health, Whitehall,
"13th September 1853.

"Sir,—I am directed by the General Board of Health to forward to you, for the information of Sir W. Molesworth and Viscount Palmerston, a copy of the report just received by the Board from Mr. Grainger, one of their medical superintending inspectors, who was sent on Friday night to Newcastle-upon-Tyne—with the evidence of medical practitioners in that town—from which it will be perceived that, in the opinion of these gentlemen, Asiatic cholera is epidemic at Newcastle in a very severe form

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"Under these circumstances, the Board have applied to the Privy Council Office, suggesting the issue of an Order under the 10th section of the Nuisances' Removal and Diseases Prevention Act, 1848 (11 and 12 Vict. c. 123)."

From T. Taylor Esq., to H. Waddington, Esq., Home Office.

"13th September 1853.

"Sir,—I am directed by the General Board of Health to forward, for the information of Viscount Palmerston, a copy of the second report of Mr. Grainger on cholera in Newcastle-upon-Tyne.

Extracts from the Minutes of the General Board of Health.

"16th September 1853.

"Read,—Telegraphic despatch from Mr. Grainger, Newcastle-upon-Tyne, with a letter asking for the services of medical superintendents under him.

"Ordered—That Dr. Waller Lewis be directed by electric telegraph to proceed to Newcastle.

"Ordered—That this be communicated to the Treasury, the Home Office, and the President.

"The Board received a copy of the order in council under the 9th section of the Nuisances' Removal and Diseases' Prevention Act.

"Ordered—That the issue thereof be communicated to the chairman of the Board of Supervision of Relief of the Poor in Scotland, and to the Lord Advocate.

"That in communicating to the Home Office, the attention of Viscount Palmerston be called to the important services rendered in the last attack of cholera in 1848-9 by the inspectors of prisons and inspectors of factories, and that it be suggested that they be requested to act on their former instructions.

"Read,—Fourth report of Mr. Grainger from Newcastle, and report from Mr. Stainthorpe, medical officer, Hexham, announcing three cases of choleraic diarrhœa.

"Ordered—That copies be sent as before."

494. Is it, or is it not a fact that your exertions in arresting or mitigating, to the best of your ability, the outbreak of cholera in 1853, were such and so continuous, that after your return to town, at the expiration of ten days, you were seriously ill and indisposed from the effects of those exertions?—That is very true. I was in bed five days I think.

495. Whatever opinion may be formed of your conduct and behaviour here then, you exerted yourself to the best of your ability to mitigate the evil then impending on the community?—Certainly; I had an enormous amount of labour.

496. Did you, during the time of your stay here, receive from Dr. Robinson a printed copy of a letter having reference to the circumstances of the late outbreak, written by him to the Mayor of Newcastle-on-Tyne?—I did.

497. Is it there stated as follows:—"In the strictures passed upon the General Board "of Health, I by no means wish to include their excellent officer Mr. R. D. Grainger, to "whom, were it merely for his distinguished private and professional reputation, the utmost "respect is due from, and I am happy to say has been rendered, by the medical profession "of the district?"—It is.

498. That is dated I see, the 13th of September, 1853; did you accept that on the Tuesday as an evidence of the approbation, by Dr. Robinson at least, of your previous exertions in respect of that outbreak?—I put that interpretation upon those words.

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499. (*Chairman.*) Have you anything further to observe with reference to the further allegation as to the tardiness and inefficiency with which the house-to-house visitation was carried out?—I may repeat what I stated yesterday, that on the first occasion when I communicated with the guardians—on the Saturday evening of my arrival—the medical officers who were present were consulting as to the requirements that they thought were befitting to carry out an efficient system of house-to-house visitation. I was a stranger to Newcastle at the time. I had once been here for half a day or something of that sort; but was really a stranger to the town in its general extent, and to the requirements that might be necessary. When the medical officers attended the guardians at seven o'clock in the evening of September the 10th, a discussion arose as to the amount of assistance which was then required, and the conclusion was, that sixteen medical students should be obtained to carry out the house-to-house visitation system, and that the medical officers should receive a certain number of gentlemen in practice to assist them in attending to the cases of developed cholera; and I may state that every evening it was my practice, when the medical officers were present, to put to every gentleman when I saw him, and to every medical officer, the question, what extra assistance of any kind was required to meet the epidemic. Various requirements were made by those gentlemen. I took notes of them and submitted them to the guardians; and in all instances, without an exception, as I now remember, all the requirements of the medical officers for extra medical assistance were granted by the guardians. There was considerable delay, as I stated yesterday, and great difficulty in obtaining the sixteen medical students. Mr. Newton, I know, was able to supply himself almost immediately, and probably the very first day, but there was

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great difficulty in obtaining the other medical students. I urged repeatedly upon all parties that spoke to me about them the necessity of having these students brought in at once, for several of them were in the country; I urged that they should be sent for; that messengers should be dispatched to fetch them; and it did not rest with me but with the guardians, with the assistance of the medical officers and those who furnished the names of the medical students, to obtain them. I made repeated representations of the great necessity of obtaining these medical visitors instantly; but I considered that those gentlemen who furnished the list of the medical students connected with the schools of the town were the parties who ought to obtain them; for the students that were to be obtained, and their names and addresses and all about them, were utterly unknown to me.

500. Speaking generally with reference to the organization of the house-to-house visitation system, did you, and did the board of guardians as far as you know, use your and their best endeavours to organize that system as fast and as efficiently as you could?—Yes; I mentioned yesterday that I telegraphed to London to have the addresses of students there obtained—to meet the case of this town being unable to supply itself from its own schools, if that should happen. I also telegraphed Dr. Christison, in Edinburgh, to inquire about medical students; but they were not to be obtained there. I took every possible means to obtain the assistance of these medical students, and to organize the system as fast as possible.

501. (*To Mr. Newton.*) Are you aware that Mr. Grainger not only suggested, or endorsed the suggestion of, the organization of a house-to-house visitation system, but that he specially suggested one detail of it, on the necessity or propriety of which he had reported in 1849; namely, as to the visiting of the working men at their own abodes in the morning, before they went to their work, and in the evening after their return from it?—I am aware that, several days before Mr. Grainger came, I suggested house-to-house visitation, and it was agreed to be carried out upon my suggestion. With reference to the suggestion ascribed to Mr. Grainger, about visiting the working classes before they went out and after they came in, I believe that was the result of a conversation between Mr. Grainger and myself; but we agreed that that was the best time when they ought to be visited.

502. (*Mr. Simon.*) Supposing that were exactly so, it would probably, in your opinion, indicate that Mr. Grainger was willing to receive suggestions which might render the system of visitation as efficient as possible?—I have no doubt Mr. Grainger's intentions were good. I do not question his intentions at all.

Mr. Grainger: Further, I wish to state that as soon as any medical students were obtained, I called them together, and had a special interview with them, giving them express instructions as to their mode of procedure; that a visitors' return, or proper form in blank, was printed and given to the visitors, in order that the guardians might know the exact progress of the disease from day to day; but that—and mainly, I believe, in consequence of the immense pressure to which the medical officers and everybody else engaged in this visitation were subject day by day—there was the greatest difficulty in getting those blank returns filled up, and scraps of paper frequently were brought in, which introduced some confusion; but all those returns and plans were devised by me. I also think it right to state that I have not the least wish to detract from the merits of Mr. Newton or any other gentleman; but still Mr. Newton's suggestions to the board of guardians for the treatment of cholera, which I have seen in the *Newcastle Journal* of the 10th September, and which I think perfectly excellent and sound, are simply, I must say, the measures which have for years been advocated and practised by the Board of Health in every part of the kingdom; and I may state, in the presence of the medical gentlemen in this room, that the very term of house-to-house visitation originated solely and entirely from the report of the Board of Health in 1849, for the term was not known in the English language before, or in the dictionary of medicine.

Mr. Newton: I must correct Mr. Grainger. House-to-house visitation had its origin with a gentleman in Newcastle in 1832.

503. *Chairman (to Mr. Grainger.)* Did you, at any time during your stay here, between the 10th and the 19th of September, in any way oppose or discountenance, directly or indirectly, the calling together of the medical profession as a body, or any number of them?—In no degree whatever; I solicited their opinions in every way. I remained at the hotel at certain hours expressly to see them. Bodies of them came, the medical officers and so forth; and I never opposed the calling together of the medical men of this town in any way.

504. Have you anything further to add with reference to the providing of cholera hospitals for the sick?—I did not expressly recommend the formation of cholera hospitals, and my reason for not doing so was the experience obtained in Germany, and particularly in this country in 1849, as to the extreme evil of cholera hospitals; indeed, before the cholera became epidemic in 1849, the Board of Health, upon the information they had obtained from various sources, stated that the establishment of cholera hospitals was not successful. I find that, out of 5,168 cases of cholera treated at home, the deaths were 1,909, or 36·9 per cent.; while, out of 2,040 cases treated in hospitals, the deaths were no less than 1,099, or 53 per cent., making a difference of 16·1 per cent. in favour of home treatment, which, in the whole of the hospital cases, would amount to a saving of about 345 lives. Now that is the result of the experience of Glasgow and Liverpool in the epidemic of 1849. But even before this experience had been obtained, the Board

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of Health had had experience, which led them to state that the establishment of cholera hospitals was not successful.

Mr. Simon: Without at all impugning your right and duty to form your own opinion on the subject, and to act upon that opinion, I would ask you whether that difference of mortality in hospitals and out of hospitals may not, perhaps, have arisen from the fact that the more advanced and worst cases chiefly were sent to hospitals?—That may partly account for it; but facts are given which show that the mortality greatly depended upon the distance to which the patients were transported, for the experience of both Liverpool and Glasgow, and particularly the evidence of Dr. Duncan, of Liverpool, shows the effect of distance in increasing the mortality. Here is a table of three cholera hospitals in Liverpool, at different distances from the infected districts, with the results.

505. (*Chairman.*) Are you reading from a report by Dr. Sutherland to the Board of Health, on epidemic cholera, published in 1850?—I am—page 128.

506. These are points which influenced your judgment?—They are; there is, first of all, the evidence of Dr. Sutherland upon the effect of distance. The effect of distance in the cases of patients carried to hospitals has been made the subject of statistical inquiry.

507. Those are the materials, or part of the materials, on which you formed your judgment that it was not advisable, in all cases at all events, to suggest cholera hospitals?—Yes. Will you allow me also to say that I do not find, first of all, in Mr. Newton's recommendations to the board of guardians in the *Newcastle Journal* of the 10th September, that he ever recommended hospitals; and no medical officer, or other person, ever at any of the meetings of the board of guardians stated or advanced the necessity of an hospital being provided—to my recollection, at least.

508. It is complained that the Board of Health and their officers destroyed the self-reliance of the medical profession here, and prevented them from taking the matter up, and did not, on their own part, institute such measures as the crisis needed. In answer to that would you wish to say anything?—I must say, in answer to one thing, with reference to the assistance to the poor having been carried out by strangers, that in the middle of the week, on the Wednesday or Thursday of my stay here, the guardians gave a *carte blanche* to the medical officers to employ any medical men that they thought proper; and that no strangers whatsoever were employed, until after I left the town, that I am aware of. There was not one employed under me.

509. I remember that yesterday Mr. Rayne, as well as Mr. Newton to-day, seemed to complain that the services which the junior practitioners of the town might have rendered were over-looked, at a moment when people were going to a distance to get medical attendants. How is that? Did not the board of guardians employ any junior practitioners from the district here?—I do not know who they were, but on the first night of my attendance there were six or eight extra practitioners appointed altogether.

510. Resident practitioners?—Resident medical practitioners, as I understood.

511. (*Mr. Simon.*) Is it in any degree a principle with the Board of Health under circumstances of this nature, to prefer elder medical students, or persons not locally in practice, to those that are actually engaged in practice in the locality?—The general custom has been to employ senior students for the house-to-house visitation. It is considered that they can give up a larger amount of their time to it; that is the view of the Board of Health; and that the general practitioners of the town should be appointed by the guardians to attend the serious cases of developed cholera,—the medical students acting under the direction of each medical officer in his district, for the purpose of discovering, by house-to-house visitation, the incipient cases of premonitory diarrhœa.

512. (*Chairman.*) Is there any other point on which you would wish to make any further observations?—I think it is still due to myself, as so many allegations have been made against me by certain medical gentlemen of this town, to refer once more to this paper—the *Newcastle Journal* of September 17th—Dr. Robinson, for instance, has made various allegations against me for inefficiency, and so forth. Now I put in one letter yesterday, addressed by Dr. Robinson to the Mayor of Newcastle, dated September 13th, and which seemed to express approbation of my endeavours; and now I find here that, at a meeting of the board of guardians, on Wednesday the 14th, Dr. Robinson observed "that he coincided "with all that had fallen from Mr. Grainger, and that the medical profession were much "indebted to him for the valuable services he had rendered them since his arrival." That was on Wednesday the 14th, when the whole of the measures which I had recommended were being carried out, as far as they could be; and what I can have done to forfeit Dr. Robinson's good opinion, between the Wednesday when Dr. Robinson thus said that the medical profession of Newcastle were much indebted to me for my valuable services, and the Saturday, when I introduced Dr. Gavin, and handed over the whole management of the affair to him, is still, I must say, an entire mystery to me. I will, however, put in that newspaper, if you will allow me. Whether it is true or not I cannot say, but I find it so reported.

513. Do you remember the circumstance alluded to by Mr. Gibb, of your having stated that you were anxious to call together, not so much the medical profession at large as the medical parochial officers?—I have not the least doubt that Mr. Gibb has given a perfectly accurate statement of what took place. The only point that I recollected yesterday, when the subject of a meeting of the profession was mentioned to me, was this—that I received an invitation

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from the Pathological Society, of which Mr. Gibb is secretary, to attend a meeting on Thursday, the 15th. It was fixed at a time when the guardians met; and probably Mr. Gibb has got the letter that I then sent, but it was to this effect: that the guardians met the same evening, and that I must attend there; that my duties called me to see them; but that if the meeting of the Pathological Society had not taken place at the time of the meeting of the guardians, I should have been glad to have met my professional brethren at the meeting of the Pathological Society, and should have gone.

514. My question had no reference to anything on the 15th, but to the interview between yourself and Mr. Gibb, in the presence of Dr. Gavin, on Sunday the 18th. Do you remember the circumstance to which Mr. Gibb has alluded, namely—that you in connection with Dr. Gavin, stated, that you did not so much wish to call the medical profession as a body together, as to have the co-operation of the medical parochial officers?—I do not recollect that, but I have no doubt it was so, and that I gave that answer. I may not have thought that the officers of the Board of Health were at that time particularly called upon to meet the whole body of the profession in the town. My view may have been this: that I had already had communications with a large body of physicians and surgeons; that many of them had attended at the meetings of the guardians; and that the views of the medical gentlemen of the town had been sufficiently consulted on those occasions. If, however, they had called a meeting together, I should have been very happy to have attended it.

515. (*Mr. Simon.*) But you did not consider it your duty to take the initiative in calling such a meeting?—Certainly not.

516. (*Chairman.*) Did you find any particular difficulty in the discharge of your duties here, greater than under similar or analogous circumstances you have experienced in other places?—I certainly did, very considerable difficulties, peculiar to this town.

517. That had some influence probably on your disinclination to call together the medical profession?—I cannot charge my memory at this time that it did; but there were various most difficult points and delicate points to deal with in reference to the medical profession in the town; from circumstances which, I believe, are tolerably well known to the profession, conflicting opinions between different parties of the medical profession here, so that it might have been very difficult to get them to act in harmony and with common consent. And in proof of that, I think I ought to say, that when I recommended to the guardians that they should appoint some gentleman of the town, in whom they had confidence, to superintend certain measures, I should have liked to have recommended one gentleman in particular, who, I thought, had great knowledge on the subject, but I really was deterred from doing so because I knew that I should thereby give offence to other medical gentlemen, owing to the division of opinion in the town.

518. Did the difficulties which you thus experienced tend to impede you in the energetic discharge of your duties?—I wanted medical assistance to be obtained, which I think might have been obtained more promptly but for those difficulties.

519. Supposing the unusual circumstances alluded to had not been in operation, do you think that you could have discharged those duties with greater ease and greater energy?—It is probable, from what I saw; and, in fact, if I were to state the numerous communications of various sorts that I received from different medical gentlemen in this town, I think it would be perceived that I was in a very difficult position in acting between them.

520. I am requested to ask you whether any special or peculiar obstacles were thrown in your way by the gentlemen who have brought the charges against the Board of Health or its officers?—I do not know who those gentlemen are altogether. There were constant communications made to me by medical gentlemen here of different opinions and views with reference to each other. It placed me in a very painful position; for instance—it was a point of great importance to obtain as speedily as possible the medical students who were to act in the town, and I found that one considerable difficulty in obtaining them arose in consequence of their having to be obtained from the two conflicting medical schools of this town.

521. What was the nature of the communications to which you allude?—They were opinions which were expressed to me, but it is a very disagreeable thing to mention them.

522. What sort of opinions, and on what points?—There were conflicting opinions expressed of several medical gentlemen.

523. Were they opinions respecting persons?—Persons entirely.

524. (*Mr. Simon.*) Depreciatory expressions, used by one set of persons relatively to another set of persons?—If I am pressed, I must say they were.

525. (*Chairman.*) Have you any recollection of the individuals who expressed to you any such depreciatory opinions of any others; and of the times and places where those depreciatory opinions were expressed?—I would not charge my memory at this time with what any one individual said of any other individual, for I might confuse names together, a number of the gentlemen being utter strangers to me. But the main fact which I state to you I state on oath, viz., that such communications were made.

526. Mr. Potter wishes, if possible, to refresh your memory on this subject, with reference to certain individuals. Do you recollect, or can you at this moment charge your memory to the effect, that either Dr. Robinson, Mr. Furness, Mr. Potter, or Sir

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John Fife ever expressed any such depreciatory opinions of any other members of the profession?—I do not recollect any of those gentlemen doing so.

527. Can you recollect that any members of the sanitary committee, then existing in this town, at any time expressed any such depreciatory opinions of any other members of the profession?—Certainly not.

528. Or did they make any recommendation to you not to call together the profession?—I have no recollection that they did. With reference to my connexion with the profession, there was another circumstance, which seemed to me to give the gentlemen of the profession facilities for making communications to me. Dr. Headlam was the chairman of the committee to which you have alluded, and I was in frequent communication with him as chairman of that joint committee, so that they all had an opportunity of expressing their views, either through him, or else personally at the meetings of the board of guardians.

529. Did you in the exercise of your discretion suggest that expense was an objection to employing the junior medical practitioners of the town?—I think it is very possible that, knowing the painful discussions which had arisen at the end of previous epidemics between many of the medical men and the guardians in many towns of England with reference to the expenses incurred for the relief given in cholera, I might have called the attention of the guardians to the fact that they must at all events consider the question of expense, and that the proposal alluded to might resolve itself ultimately into a general employment of the whole body of the medical gentlemen in the town, without any previous arrangement about expenses and so forth.

530. (*Mr. Simon.*) Will you now look at that statement of the Registrar-General's—at the top line of it. Do those figures represent high rates of mortality?—Very high rates.

531. (*Chairman.*) You find three years in which the mortality exceeds 30 per 1000?—Three years, excluding 1853.

532. (*Mr. Simon.*) In this country should you not look upon a death rate of 30 in 1000 as almost a pestilent death rate?—It is a very high rate of mortality, and indicative of a large amount of epidemic and zymotic diseases.

533. There is one year, I think, where it stands at 36 and a decimal?—Yes, 1846, that is very high indeed.

534. In the last year it stands at 43 and a decimal?—43·3.

535. Does your experience of death rates in England tell you of many cases of a population of this extent having a death rate of that amount for a year?—Not certainly for so large a mass of population as 89,000.

536. What inference should you draw from that table as to the condition of human life in Newcastle?—I should infer, as what may be called the natural mortality among mankind is very fixed and not uncertain, that this great excess of mortality must be dependent upon unnatural causes of unhealthiness, as they may be called—on epidemic diseases, which may be prevented.

537. The Registrar-General, in having that table prepared for us, has appended, you will observe, to the line of general death rate, a second line, in which he specifies the rates at which the population has died from zymotic diseases?—Yes, for a certain number of years.

538. Speaking in round numbers, should you think that that line would express the proportion of preventible deaths; or that it would bear any ratio to the proportion of preventible deaths?—A very near approximation, because it seems to me, from my experience, that where the best sanitary arrangements are carried out, diseases of the zymotic class are, to a very great extent, capable of being eradicated.

539. (*Chairman.*) When you say that you should consider the class of zymotic deaths to be nearly preventible, what public institutions, or what instances would you allege in support of that opinion?—The best instance that I know of our capability of controlling zymotic diseases as regards any numbers of people, is the model lodging-houses, in London, which I have had occasion repeatedly to examine; and where the zymotic deaths are almost reduced to nothing among a population of about 1,600 or 1,700 people.

540. (*Mr. Simon.*) Of all ages?—Of all ages, and particularly with a very large proportion of children.

541. (*Chairman.*) Is it also a fact, known to you as a sanitary officer, that, whereas typhus and some other such diseases used at one time to prevail very extensively in union workhouses and prisons and so on, those diseases have been practically eradicated from the better regulated among those public institutions?—Yes, that is a fact also.

542. Would you not, as a sanitary officer, consider that the presence of typhus, or any such form of zymotic disease to any considerable extent in a union workhouse, in a prison, or in any other public institution of that kind, implied a negligence of sanitary precautions on the part of the authorities of those institutions?—I should say, at all events, it indicated the existence of removable causes of disease; and if there are authorities charged with the removal of those causes, it would imply neglect on their part.

543. (*Mr. Simon*). It would be your general impression, from looking over that paper, that there has prevailed in Newcastle, for a series of years, a considerable amount of preventible disease?—Yes.

544. Have you, in your visitation of different districts of Newcastle, seen with your own eyes any physical conditions surrounding the population there, that would in your judgment account for that high zymotic mortality?—I have.

545. Will you mention those conditions?—The most serious evil that I witnessed in the inspections which I made of Newcastle was the excessive overcrowding. That seemed to me to be the most serious sanitary evil. It had extended to a great degree; and had been exasperated, as I understood, shortly before my arrival by a new influx of Irish.

546. Perhaps it would save you time if you were briefly to mention the districts of the town with which you are most familiar?—I may say I am most familiar with Sandgate. I visited some other parts with Mr. Newton, but I do not know their names. I know Sandgate—I went into a considerable number of places there.

547. And in that district you found to a considerable extent the prevalence of overcrowding?—Yes, in the houses that I went into; but I saw the worst specimens of overcrowding with the inspector of nuisances.

548. In the same district?—That was in Sandgate.

549. Will you illustrate the kind of overcrowding that prevailed?—One fact was mentioned to me by Mr. Newton, of twenty or twenty-five persons being in one room as I remember, 12 feet by 15 feet.

550. But we would rather get your evidence as to what you yourself saw; and particularly as to whether you found single rooms answering the purpose of a house to entire families?—Certainly.

551. Whether also you found any rooms occupied by families, in which corners of the rooms were sub-let to other families, and so forth?—Yes, I saw that, in one room particularly, where a man was lying on the floor, dying of some chronic disease, and where the room was full, so to speak, of men, women, and children besides.

552. (*Chairman.*) Members of more than one family?—Members of more than one family—that I saw repeated instances of.

553. (*Mr. Simon.*) Did you find as a frequent thing, in these crowded rooms, that the atmosphere was offensive?—Highly offensive.

554. Are you acquainted with the arrangements in that locality for the necessities of the population in regard to their evacuations?—I saw that they were most defective—nothing can be conceived more defective.

555. Did you see evidence, as you went round, of defective privy accommodation?—In every direction.

556. Did you see excrement extensively scattered about on the pavements?—I saw it repeatedly on the pavements and on the gratings.

557. Did you in the dwelling-rooms, inhabited in the manner you have described, see that the excrements of persons were contained in what are here called "kits"—in tubs, and in vessels of various kinds—till a convenient time arrived for discharging them on to the pavement?—They were pointed out to me in going through the rooms and passages.

558. (*Chairman.*) You saw them repeatedly?—I saw them in many instances; I connot charge my memory with the number.

559. (*Mr. Simon.*) Do you believe that the presence of matters of that kind for some hours in dwelling-rooms would be detrimental to health?—Most pernicious; and I wish briefly to state in proof of that, that cholera and fever particularly prevail in houses next to privies, and over them, in preference to other houses in the same alleys and courts.

560. Would it be an over-statement in respect to such districts as you describe—and I will take particularly the district of Sandgate—would it be an over-statement, in respect of the inner dwellings in the enclosed part of Sandgate, to say that the inhabitants there are constantly in an atmosphere of their own excrements?—I believe they are.

561. Do you believe that that condition of their atmosphere would have exerted an appreciable influence on the prevalence of cholera in that locality?—I have no doubt of it.

562. Do you believe that an atmosphere of the kind which you have described is compatible with health?—No, I do not; it is not compatible with health.

563. It has been represented to us, that in some of the higher districts of the town—in some of the better conditioned houses—cholera has prevailed with some severity; and although we have not yet collected full evidence on this point, it seems probable from what we hear, that in many of these houses the arrangement for the matters in question is not that of water-closets, by which the excrements are rapidly carried away through pipes to a distance from the habitations, but of open privies; so that the excremental matters soak more or less into the soil, and accumulate in the immediate vicinity of the dwellings. Should you consider this an arrangement detrimental to health?—Decidedly so.

564. Suppose it should transpire that in this town there are well built and otherwise well conditioned houses, in tolerably broad streets, inhabited by wealthy persons, where this arrangement prevails, where at the backs of the houses, or perhaps in their cellars—but take the more favourable case, and say at the backs of the houses—there are open privies of this kind in a row, with other houses behind them, so as to confine any emanations which may arise from these privies; would it surprise you, would you think it unaccountable, that cholera should select those houses for its visitation?—No, I should not indeed.

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565. Should you consider those as unwholesome houses in respect of that state of privy accommodation?—Yes, I should.

566. Will any diligence of the housemaid in rubbing the floors, or in maintaining what is, in general terms, called the cleanliness of a house, compensate for the bad influence of such a fœcal atmosphere around it?—Nothing whatever.

567. A house which had all the appearance of being in good condition, inhabited by decent people, with a proper array of servants, and so forth, but with these arrangements behind it, would be substantially an unwholesome house, and one likely to engender disease?—Certainly.

568. (*Chairman.*) Supposing we take the case of an almost model house, surrounded on several sides by bad and pestiferous districts, would it be unaccountable to you, in a sanitary point of view, that the inmates even of this model house should be more or less affected with epidemic disease?—Not at all. Exactly a similar case occurred in 1849, in a very good, well-built row of houses in Kensington parish, in the vicinity of a district called the Potteries, where a large number of pigs were kept in a very offensive condition; so that the smell was perceived in the row of houses to which I am alluding; and when the outbreak of cholera occurred in that row, which it did very severely, the medical men attributed it to the foul air thus carried thither from a distance.

569. Reverting to the general state of Sandgate, when you visited it, would you be disposed to say or to think that the state of that district, as you saw it, would naturally suggest to a person acquainted with sanitary matters the probability of that district being, sooner or later, visited with epidemic disease?—Certainly; it presents all the characters favourable to such a result.

570. Could you, with your knowledge as to the sanitary conditions which are requisite for healthy existence, resist the impression which such a locality would make upon you as to the inevitable probability, sooner or later, of some virulent epidemic occurring there?—I could not. It is not only in the interior that the want of all sanitary arrangements is obvious, but the houses are so close together. I measured one passage, and I think the width was between three and four feet.

571. Do you think there is any record of any such locality having existed in such a condition for any length of time without having been virulently affected with epidemic of one kind or another?—No; I know no such instance; and I should think there is no such place but what would be habitually affected by epidemic disease.

572. Were there more districts than Sandgate in such a condition as to suggest that inevitable probability of epidemics?—I have seen some others in the town, but I cannot distinguish them by name—houses against the banks particularly.

573. (*Mr. Simon.*) In reference to certain cases of cholera which seem to have occurred in houses of the better class, such as I adverted to before, suppose that it should appear on inquiry that those houses are properly furnished with water-closets, and with all arrangements for carrying away the excrements produced in the establishment, and that there is no fault to be found with their individual drainage; should you consider, from the generally defective state of Newcastle—in respect, first of all, of its containing such places as Sandgate and its vicinity, and, secondly, in respect of the common prevalence of open privies, even in the better parts of the town—that the general atmosphere of the place, as affected by these influences, was capable of accounting for the occurrence of cholera in those houses that themselves might present no particular structural defect?—I have no doubt that it would be sufficient to produce isolated cases in a moderate attack of cholera; and if a great epidemic like that which has now visited Europe, the most destructive attack of cholera that has yet occurred in Europe, were to break out in a town as it did break out here in Newcastle, the general malaria to which you allude would undoubtedly expose persons living in the best ventilated and best drained houses in this town to the danger of an attack of the epidemic.

574. So that you would not consider such cases as telling against the general doctrine that filth invites, while cleanliness gives immunity against, epidemic disease?—Not in the least degree.

575. Was your attention directed to the subject of the water supply of Newcastle during your stay here?—It was repeatedly.

576. Had you occasion to examine the water supplied to the greater part of Newcastle and Gateshead by the Whittle Dean Company?—I did not examine it at the time, nor have I myself examined it at all; but this I have done: I requested Dr. Gavin to have some jars of water taken from the Tyne, at the same state of the tide, and the same locality, at which the water had been drawn by the company, previously to, and partly during the outbreak of cholera; and I can state that that water was examined microscopically by my colleague, Mr. Rainey, and chemically by Dr. Robert Dundas Thompson.

577. While you were making your investigations in this town, did you hear complaints on the subject of the water supply?—Repeated and constant.

578. As to its quality or quantity?—More particularly as to its quality, during the two months preceding the outbreak of cholera. At least, I will say from July.

579. What was the general tenor of those complaints?—The fact was brought before my notice on the occasion of my urging the thorough cleansing out, by the jet and hose, of the dirty holes and corners in Sandgate. I made that suggestion, among others, to the mayor; and some gentleman present said, "To-morrow, then, we shall drink that water

again, supplied by the water company." That was the first indication I had how the town was supplied with water. Then after that there were repeated communications made, and particularly to the board of guardians, with reference to that subject.

580. Did you in any degree verify those complaints? Did you in any rough and general way examine the condition of the water? Did you see it in a glass?—No; I did not see the water myself at all, excepting at the hotel, where it seemed to me to be good; where it came from I do not know.

581. (*Mr. Bateman.*) You do not know whether it may have been filtered before you received it?—No, I do not.

582. (*Chairman.*) Supposing that it should hereafter appear that the water was turbid from the presence of a considerable quantity of matter, mechanically diffused throughout it, in the form of flocks; that these flocks consisted of organic forms, similar to those of infusorial or diatomaceous beings; that very distinct animaculæ, or vibriones, were sporting about in great numbers through this water; and that the weight of this foreign matter amounted to 4·5 grains in a gallon; would you consider that such water was desirable, or the contrary, for house purposes?—I should think it most undesirable for domestic purposes.

583. (*Mr. Simon.*) Should you consider that the presence of the vibriones, there mentioned, indicated that any putrid process was in action there?—I should think that the presence of all those minute microscopic animals there indicated also the presence of the food upon which they live, which is known to be matter in a state of decomposition.

584. Then you would infer from the presence of the vibriones, and the other low organized forms there, that decomposition was proceeding in that water?—At that time. They would take up the last particles of organic matter before it passed into final decomposition.

585. (*Chairman.*) Should you consider that 7·1 grains of matter, derived from organic sources, in a gallon of water, was a large amount?—Certainly it is.

586. (*Mr. Simon.*) You visited several districts of this town?—Yes. They may be called several, I think; but I am speaking now rather at hazard, because I do not know the exact districts and divisions.

587. Did you put yourself under other guidance than Mr. Newton's? Did you go with other functionaries of the town?—More particularly with Mr Jenkins, the relieving officer. That I understand is the same district, namely, Mr. Newton's. I saw some districts also with Mr. Gregson, as I remember now.

588. Was the condition of the houses which you visited out of Sandgate, in the other districts to which you allude, a good condition?—I saw in some other districts some very badly constructed houses; and those struck me as the worst class which were built against the banks. Those I saw also with Dr. Robinson in 1852.

589. (*Chairman.*) We find that under a local act, which came into force in June 1846, the town council is empowered to make bye-laws for the registering of lodging-houses, for maintaining cleanliness therein, and for keeping them in a wholesome condition; to lay down rules for cleansing filthy and unwholesome dwellings, and to ascertain and fix the penalties to be incurred by persons for the breach of such rules and bye-laws. Should you have inferred, from your inspection of the different districts of the town, that a law of this nature had been in operation for seven years past?—I certainly should not have inferred it.

590. Should you have inferred that it had been actively and zealously performed?—No, I cannot say that I should have thought so.

591. Did you ever see the interiors of the dwellings throughout so large a district in so bad a condition?—Taking the whole of Sandgate, with a population, as I am informed, of between 4,000 and 5,000, I do not recollect any equal area in so bad a condition.

592. Of which the interiors generally were in so filthy and unwholesome a condition? Yes; and with such a total absence of privies.

593. (*Mr. Simon.*) Do you believe that any amount of energy on the part of the authorities, amid the panic of an epidemic, can compensate for the previous non-execution of similar duties during a long period of time?—It is impossible, I think.

594. (*Chairman.*)—You alluded just now to the question of banks. Did you also pay attention to the system of house construction, which prevails in Sandgate and in other districts?—Yes.

595. Did you find, as a common form of house construction there, that rows of houses are built back to back, with deep, I will not say alleys, but with deep chinks between their fronts and the fronts of similar double rows beside them?—Yes, I saw that.

596. Supposing such a mode of house construction to prevail extensively over a district, so as effectually to impede all thorough ventilation, and to insure that the walls of the greater part of the habitations shall never see the sun nor feel the wind, do you conceive it possible, by any regulations of sewering or of internal cleanliness, to maintain such a district in a wholesome and healthy condition?—I think it is impossible.

597. (*Mr. Simon.*) If you had had to imagine death-rates for a population subsisting in the condition in which you appear to have found a large portion of this population subsisting, would those death rates have accorded pretty nearly with the very high death rates which the Registrar-General's paper discloses?—I can quite conceive that they

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would be as high as these. I have known death rates, in special localities, quite as high from similar causes.

598. (*Chairman.*) Do you know any town in England in which you could find a district at all approaching in area to that of Sandgate, in which the form of house construction is so radically bad and unwholesome?—I think not. I think that the courts of Liverpool and Manchester, which are about the worst I know, are decidedly wider and larger, and more abundantly supplied with privies.

599. Secondly, as to the construction of houses in what are here termed "banks," would you not consider that the building of a house with its back or side into an undrained and, perhaps, sewage-sodden mass of earth, was a very improper mode of construction with a view to the public health?—So much so, that I think such houses ought not to be permitted to exist.

600. In so far, I suppose, you would consider that the having a house built into a damp and unwholesome bank was even worse than having it built up against the back of another house?—Certainly, owing to the constant soakage into the walls of foul matter from the higher parts above.

601. Did you, in your inspections of these bank districts, see any evidences of the banks, into which these houses are built, being in the damp and unwholesome state to which I allude?—Yes; I have seen the walls damp, and was told that it was their constant condition, and that the liquid from the walls sometimes leaked into the rooms after heavy rain.

602. When you speak of liquid in that way saturating the brick work and appearing on the walls, do you mean simple dampness, or something worse?—I mean the liquid which comes, loaded with sewage matter, from the general soakage from above. I saw that particularly in Tynemouth.

603. Let us keep to Newcastle. Did you, in your personal inspections, see enough to induce you to credit the information thus given to you, as to the walls of these houses being frequently soaked and wet with dilute fœcal matter?—I have not the least doubt that all sorts of foul liquids found their way into those houses at times, particularly after heavy rains.

604. Can you conceive tho co-existence of public health, in any width of the term, with such a state of house construction and house walls?—I cannot possibly. That is my conviction.

605. I think you alluded, in general terms, to the fact that you were informed, and had reason to believe, that there was a great want of privies in these districts?—Yes; I saw distinct evidence of that.

606. I presume that want of such accommodation in districts of any considerable size would, in your opinion, lead to an inevitable and extensive pollution of those districts?—Inevitably so; and I found it so in going round, particularly at night, with Mr. Newton, after the vessels had been emptied into the gutters, and particularly on to the gratings, where the stench was most oppressive.

607. Yesterday, I think, in specifying the causes of epidemic visitations here, one of the medical gentlemen alluded rather pointedly to the habits of the population. Taking into consideration the conditions of privy accommodation, and so forth, which you saw, do you conceive that any zeal for cleanliness or any habits of cleanliness on the part of the inhabitants of those districts could, in the long run, avail to keep their districts clean and wholesome, or to save them from the poisonous influences of this malaria-exhaling soil?—I think it is impossible that any habits could correct that evil.

608. You mentioned, I think, that as far as you had received information upon the point, there were houses which had been recently erected, which were in as bad a sanitary condition as the old district of Sandgate?—I received information to that effect; scarcely so bad as Sandgate, but in a most defective sanitary condition.

609. (*Mr. Bateman.*) Did you ever see a mass of building as large as Sandgate and its immediate neighbourhood, so closely occupied by inhabitants, in any other town?—Not the same amount of area.

610. Do you know Edinburgh and Glasgow, for instance?—I do not know much of Edinburgh; but I visited Glasgow during the cholera of 1849.

611. Do you think that that part of Newcastle is more closely packed than equal areas in Glasgow?—I think than the parts which I saw in Glasgow. The custom in Scotland of high houses of course causes a great condensation of inhabitants upon a given area; but, speaking of the town generally, what I saw in Glasgow was not so compact as in Sandgate. The narrowness of the passages struck me particularly in Sandgate; and I had them measured in one or two instances, they were so very narrow.

612. Supposing that better thoroughfares between the houses existed, and that the other domestic and sanitary arrangements were such as could be desired, would the crowding of inhabitants in those piles, one above another, which exists in Scotland, be largely injurious to health?—Overcrowding would be injurious.

613. I do not mean overcrowding; I mean living in flats one above another?—I think not; and for this reason—that the block of model lodging-houses in the St. Pancras Road, in London, containing about 700 people, is very high; and it is found that the upper rooms are chosen, because, first of all, of their quietness, but also because they are found to be so remarkably airy and healthy.

614. Do the upper rooms obtain their healthiness at the expense of the lower rooms?—The lower the room the less the air; the higher the room the better the condition.

615. Would you think the houses of a town, consisting of four or five or six stories, as healthy as in a town consisting of houses of two stories, everything else being the same?—No, I think not. I think the lower houses would be the healthier. The blocks of houses I speak of are in open spaces, surrounded by open spaces in all directions.

616. (*Chairman.*) We asked you just now your opinion as to the manner in which certain local Acts had been put in force. With respect to the public Act, the Common Lodging-houses Act of 1851, did you on the 11th of September 1853 report to the Board of Health that the Common Lodging-houses Act had not been put in operation?—I did.

617. Was it within your knowledge that a meeting of the town council was to be held on the Wednesday following, the 14th, for the purpose of putting it in operation? —There was to be a meeting, more particularly for that purpose.

618. You understood that?—Yes; whether exclusively or not I do not know; but that was one main object.

619. (*Mr. Simon.*) Are you aware that there were one or two remarkable points in relation to the barracks at this place, during the late outbreak of cholera?—Yes, I am aware that there are some very important and peculiar facts.

620. That they were exempt from cholera, but that they suffered considerably from diarrhœa, and to such a degree that in the dragoon regiment they had on an average two attacks of diarrhœa to every individual of the regiment?—Yes, I am aware of that fact.

621. And that in the infantry regiment, on an average, they had something less than one case of diarrhœa to every individual; and that none of all those cases went on to cholera?—I am aware of that.

622. Have you formed any opinion, either as to the meaning of this large prevalence of diarrhœa, or as to the meaning of the non-occurrence of cholera among that population of 519 persons?—The opinion that I have formed upon that point is this, that the diarrhœa was dependant upon two causes—the general presence of the epidemic, and the malaria to which the barracks were subjected by the effluvia from the town of Newcastle and the neighbouring districts. The fact of no cases going on to cholera I conceive depended, first of all, upon the good sanitary state of the barracks, and the precautions taken to keep them in a healthy condition; and, secondly, the great promptness with which the premonitory diarrhœa was treated on its earliest appearance.

623. I take for granted that you have read this communication from the assistant surgeons of those regiments to Dr. Andrew Smith, Director-General of the Army Medical Department?—I have. *Vide Evidence, post. p.* 241, 242.

624. And you believe that the great pains taken to enforce cleanliness throughout the establishment, the care of diet, and the treatment of diarrhœa, were the means of counteracting the tendency which otherwise the diarrhœa might have had to pass on into cholera?—Certainly, with the prompt treatment.

625. (*Chairman.*) That together, at all events, they mitigated the tendency to cholera?—Greatly, I have no doubt.

626. (*Mr. Simon.*) If it had been possible to pursue a similar plan of management for the whole town of Newcastle, to make all the poorer houses as clean as the barracks were made, to make all the thoroughfares and all the ways of the town as clean as the open space of the barracks, to meet every case of diarrhœa by appropriate treatment at its commencement, and so forth, do you believe that Newcastle altogether might have been exempt from cholera, as the barracks were?—I should think to a very great extent. Precisely the same conditions would have had the same success, no doubt.

627. You believe, in short, that what is here illustrated on a small scale, in a community of 519 persons, might have been illustrated to any extent by the application of similar means?—Yes, I do.

628. You regard this, then, simply as an illustration of efficient sanitary management? —Yes; as I regard the exemption of the model lodging-houses in the midst of London in 1849.

629. It is a point which has, I believe, been included by implication in the evidence which you have already given, but was your attention much directed to the state of the paving here?—Not particularly.

630. Did you notice in any neighbourhoods of the town much retention of filth in interstices of the pavement?—I have seen it in a general way repeatedly.

631. (*Chairman.*) Is a large, or any considerable part of Sandgate paved with pebbles, in such a way as to retain large quantities of filth in the interstices?—It is paved in an imperfect manner; and there are spaces between the stones.

632. (*Mr. Simon.*) Did it appear to you that scavenage was adequately performed in any district of the town?—My attention was not particularly directed to that, but the existence of filth indicated that it was not.

633. (*Chairman.*) Considering what you heard of the want of privy accommodation, could any extent or energy of scavenage ever avail to keep such a district clean?—I believe not.

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634. (*Mr. Simon.*) Did you see any of the few public privies that are in the town?—I examined one, but that was in 1852, not this last year; it was near a large church in the town that I saw it.

635. Was its condition decent?—Very far from it; it was highly offensive, and greatly complained of to me by the neighbours. Urgent complaints were made.

636. So that a clean person would rather have relieved himself in an alley, than in that place, perhaps?—That is a matter of taste; but it was remarkably offensive.

637. (*Chairman.*) Should you, from the personal inspection which you made of that one public privy in the year 1852, have considered that the powers of a certain local Act of 1846, empowering the town council from time to time to make byelaws for regulating the management of public privies, had been efficiently put in operation?—I should think not from what I saw of that one. It was greatly crowded—there was not sufficient accommodation for the neighbourhood.

638. Can you give an opinion as to the distance to whichthe fœcal scavenage of a town like this ought to be carted?—One of the best tests is, whether you can smell it with prevailing winds; and it must be a good distance, because it is well known that the effluvia of large a cumulations of fœtid matter are carried by the winds to a very considerable distance.

639. Do you think that the accumulation of a large mass of filth within three or five minutes' walk of any considerable amount of population is conducive to their health?—I should think it would be injurious to health at that distance. I have not the least doubt of it.

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640. (*Chairman.*) You are senior physician of the infirmary of this town?—I am.

641. And physician to the dispensary, and to the fever hospital?—Yes.

642. How many years have you been connected with those institutions?—I have been been connected with the infirmary about seventeen years.

643. And how many years have you been in practice in the town?—I should think about twenty-five years.

644. You witnessed the outbreak of cholera in 1831?—I did.

645. Had you charge of the Gateshead dispensary at that time?—It was not then established. I had charge of the Gateshead cholera hospital.

646. You saw a good deal of that outbreak?—I did.

647. You published a pamphlet on the subject I believe?—I did.

648. Did you express strong opinions in that pamphlet as to the effect of sanitary conditions on the virulence of such outbreaks?—I expressed a strong opinion as to the power of preventing the fatality of that disease. I do not know that I entered much upon the sanitary question. I have the pamphlet with me.

649. Did you insist upon any particular means for mitigating the fatality of the disease?—Yes; I advised that the state of the districts should be examined, and that district officers should be appointed, and that something in the nature of house-to-house visitation should be established and carried through, for the purpose of attending to the premonitory symptoms. I undertook to say that that would very much diminish the evil.

650. You recommended that with a view to prompt treatment?—Just so.

651. When you suggested that districts should be examined, with what view did you suggest that, or in what points did you wish the districts to be examined?—The fact is, that in Gateshead at that time, and indeed in Gateshead at the present time in some parts of the town, the houses are in a filthy and very dirty condition.

652. It was with reference to sanitary conditions?—As far as that goes, it was.

653. You mentioned, I think, in some evidence which you recently gave before Mr. Grainger, that cholera was entirely confined to the poor at that time?—At that time it was.

654. Have you any remembrance of the years between 1838 and 1841?—I should not like to give evidence upon that; I have not a sufficient recollection.

655. We had found a very large increase of the cases admitted into the fever hospital in those years, and we wished, if we could, to know something about the diseases that prevailed then you have no recollection what they were?—No.

656. In the various reports of the dispensary and fever hospital, we find statements as to the occurrence of an epidemic of contagious fever in 1843-44, of scarlet fever in 1845-47, Irish fever in 1846-48, and so on, together with opinions as to the causes or aggravations of the same, as brought out in detail in the evidence of Doctor Headlam yesterday. In your opinion might we take those statements of the fever hospital and of the dispensary reports to be correct?—I think so.

657. You had charge of the fever house in the year 1847?—I had.

658. The intensity of that epidemic was unparalleled, was it not?—As far as numbers went, not as to fatality.

659. I think you mentioned in your report to the fever hospital for 1848, pages 9 and 10, that out of 698 cases, only 64 died?—I have no doubt that that is correct. The

cases, I think, were very much confined to the Irish population of this town. In that hospital report it will be found that, a large proportion of them were Irish. It is rather an important point.

660. We had evidence from Dr. Headlam, however, to the effect that the disease spread extensively among the English population also?—It was very contagious, certainly. I mentioned in the report that it was exceedingly contagious, but generally its malignity was not great.

661. Taking the statement of these reports as true, do you consider that Newcastle has been visited with epidemics, cholera, typhus, scarlet fever, &c., to an extent greater than that to which other towns of the same size and population have been visited?—Do you mean of late years?

662. Generally; at any time within your experience?—I am not aware that it has been.

663. (*Mr. Simon.*) In the last 14 years?—I should think not. I have seen measles here in a form as malignant as cholera.

664. In the poorer and lower neighbourhoods?—Among all classes; not confined to poor people.

665. (*Chairman.*) There was one phrase you used in your report to the fever hospital for the year 1848, at page 10, to which I would draw your attention. After stating that nothing could be more ingeniously adapted for the engendering or disseminating of infection than the trampers' boarding-house, or the tenemented dwellings of the lower Irish, you go on to use this phrase: "Here fever has its constant home." Is that the opinion which you held at the time?—It is.

666. Do you still entertain it?—I think that things are very considerably improved.

667. Since 1848?—Yes, there has been a gradual progression of drainage, in a way which I think useful. When the health of towns investigation took place here some years ago, I contributed to a report in which we stated the deficiencies of drainage. Many of the bad places were pointed out. In this map I find that the very worst parts are now drained, and that the remainder of those which we spoke of are in process of being drained at this time.

668. (*Mr. Simon.*) Does that map show where the houses are drained into the sewers or only where sewers are constructed?—I do not quite know that.

669. (*Chairman.*) With reference to that statement of yours, that at one time fever had its constant home in certain districts of this town, it is your opinion that the condition of those districts has been materially improved since then?—It has been improved certainly, I believe.

670. You have mentioned, as one instance of supposed improvement, the introduction of sewers, although you do not profess to know what number of houses may drain into those sewers?—Yes.

671. Is there any other point in which you think that the condition of those districts has been improved?—I do not remember that there is.

672. Have you noticed any decrease of mortality in these districts corresponding to the supposed improvements?—No, I have not. I cannot speak within the last few years so decisively as I could have spoken in the years previous, inasmuch as I have not had so much to do latterly with those localities.

673. (*Mr. Simon.*) There is some record here of your opinions at the time when Mr Rawlinson visited the town, as superintending inspector of the General Board of Health in 1849?—Yes.

674. You were then a member of the medical committee of the Newcastle and Gateshead Sanitary Association?—Yes.

675. Which made a communication to Mr. Rawlinson, and which had the advantages, apparently, of your advice and assistance?—Yes; I signed the communication.

676. The paper begins with speaking of the mortality of Newcastle for the previous seven years, and then there occurs this paragraph:—"This excessive mortality during the "last few years has arisen solely from zymotic or epidemic, which are in fact the most "preventible diseases. Scarlatina, influenza, typhus, and other forms of continued fever, "measles, small pox, and cholera, are the chief of this group; and the former have in turn "raged with great severity in this district." Further on again it is stated that "To describe "the seats of typhus and other forms of continued fever, would be to enumerate all the "narrow undrained alleys in the older parts of the town, together with many equally un-"healthy, because still more neglected, districts in the suburbs. In many partsof Newcastle, "fever may be said to be never absent; and a continued residence in those unwholesome "dwellings is certain to involve the prostration and eventually the death of some members "of the family by fever. As an illustration of this statement we may refer to the statistics "of fever in a notorious locality, during a portion of the epidemic of 1847; by which it "appeared that in nine rooms in Craig's Court, tenanted at the time of inspection by fifty-"five inhabitants, there had been, within the three months immediately preceding our visit, "no less than fifty cases of fever and five deaths." Do you see any reason to alter the opinion which is there given?—No; I have no doubt that that was founded at the time upon the experience of those gentlemen.

677. Have you reason to believe that the districts here referred to are materially altered since then?—Some of the districts are very greatly altered. The very worst dis-

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tricts in the town were down at the bottom of Westgate Street—where the High Level Bridge and Railway has interfered, and taken them away.

678. Is Craig's Court still in existence?—Yes.

679. (*Chairman.*) Were not the railway operations, to which you allude, finished before 1849?—Perhaps so; I may have confounded two reports. On one occasion, at all events, I went into the investigation, and I took the trouble, with Dr. Humble, to mark out certain parts of the town. There was an entry at the bottom of Westgate Street, which was afterwards swept away.

680. Whether these improvements were or were not consequent upon the railway operations, or upon some other circumstances, it is your opinion that, since the date of this Report to Mr. Rawlinson in 1849, considerable improvements have been made in some of the localities there alluded to?—I would hesitate to speak decidedly upon the subject, on account of my experience of those localities not having been so great latterly. At the time when these sanitary investigations were going on, I paid a good deal of attention.

681. (*Mr. Simon.*) There is another paragraph here, which we think of a good deal of importance in relation to the subject of our investigation. It speaks of the cholera of 1848, and the comparative lightness with which it visited this town. The paragraph runs thus, "The comparatively few cases of malignant cholera which have occurred in New-"castle, supply, we think, amply sufficient evidence, both of the invariable dependence of "the attacks of this epidemic on certain predisposing physical causes, and also of the "necessity for continued vigilance on the part of the authorities, lest this fearful disease, "in the event of second visitation (by no means an uncommon accident in its erratic "course,) should exercise a more destructive influence upon the inhabitants of Newcastle." That sentence implies that you would look to the removal of certain predisposing physical causes for the prevention or mitigation of epidemic cholera?—I certainly should.

682. You retain that opinion?—Yes, to a great extent. I must confess that this last attack has very considerably modified my opinion on that question.

683. And you would look to continued vigilance on the part of the authorities for the removal of those predisposing physical causes?—Yes.

684. Does it then appear to you that, from 1849 to the present time, the authorities have exercised that necessary continued vigilance for the removal of predisposing physical causes?—I could have wished they had proceeded a little faster, certainly.

685. (*Chairman.*) I understood you to say that since the date of that report you had very considerably modified your opinion as to the extent of the influence which these so-called predisposing physical causes have on the aggravation of cholera?—I have.

686. (*Mr. Simon.*) To what extent?—In the original epidemic of 1831 and 1832, I found the disease almost entirely confined to the very lowest localities. On this last occasion I found it in the residences of some of the most respectable inhabitants, in which, as far as we know about sanitary matters, everything had been attended to. I can mention on the map places which will show what I refer to.

687. Can you speak from your own personal knowledge to the occurrence of groups of cholera cases in houses where the drainage was unexceptionable?—Where the drainage, as I presume, was unexceptionable—inasmuch as there were drains there, I believe—I cannot take upon myself to say that I made personal investigation as to how far the drainage acted. For instance—here, where I reside, there was not a single case of cholera; but when you turn down Oxford Street up Carliol Street and into Carliol Square, you find yourself I believe in one of the worst affected districts of this town during the last visitation; and yet there it was drained.

688. (*Chairman.*) What is the condition, in other sanitary respects, of Carliol Street and Carliol Square?—I would say such as you would see in small towns.

689. (*Mr. Town Clerk.*) And there is a good descent for drainage?—Yes.

690. (*Chairman.*) Do you know what was the extent of the privy accommodation, for instance, in those places?—I believe there was privy accommodation in all.

691. Do you know what was the state of the privies there; as to whether they had been properly emptied and cleansed, and in a proper state—because of course an uncleansed privy is as complete a poison-pit as you can imagine?—Quite so.

692. Do you know what was the state of those places in that respect?—No, I do not know, further than, generally speaking, the privies were such as are usual in respectable residences of the middle classes. Indeed I was anxious to find the contrary; because my wish was to find that sanitary defects had led to the virulence of this epidemic.

693. Supposing this allegation were made; viz, that in the years 1831 and 1832 the accumulation of filth in the worst districts were such as to affect those districts only, but that in the interval between 1831 and 1853 those accumulations of filth had so increased, and the malaria evolved from them had gained so much in virulence and intensity, that it spread from these worst districts to the better districts adjoining them; and that the affection of the better districts during this last outbreak, as well as the worst districts, was owing to an intensification of the previously bad sanitary condition of the poorer districts: do you think that that would be a just and tenable allegation?—I think that if you could prove to me that any such intensified cause is in existence, it would modify my opinion. I grant that.

694. (*Mr. Simon.*) Have you ever of late had occasion to walk through Sandgate in the morning?—I had occasion to visit Sandgate during the last epidemic of cholera.

695. Did you find a very great diffusion of excrement on the thoroughfares of Sandgate?—I cannot say. I am not sufficiently acquainted with Sandgate to speak to that.

696. (*Chairman.*) Supposing it should be put in evidence before us hereafter that in a district like Sandgate, containing perhaps some 5,000 people, there have for years been at the utmost but some half-a-dozen privies, of which but one was public, and that a large proportion of this population have literally had no resource except to shed their excrement on the surface of the streets, can you doubt that the filthiness of those districts has been increasing in intensity every year since the outbreak of 1831?—I do not know that it has been increasing in intensity. I know that I made very considerable personal exertions—I do not mean to say that I made more exertions than other people—but I made very considerable exertions to have some of those filthy places cleaned out. They were cleaned out for a time, just to accumulate again, I dare say, but as I stated before I have not any great personal experience.

697. Our position is this. We have seen with our own eyes a certain number of facts in connection with this matter. We are at this moment unable to comprehend how the intensity of the filth nuisance in these districts should not have been continually increasing. We cannot understand what circumstances can have prevented it. Now can you suggest to us anything, or give us any explanation tending to show that that has not been the case?—I fancy that these places are cleaned out occasionally. I do not mean by any means to defend such places. I know what they are, and have for many years been, and my earnest endeavour has been to relieve it as far as I could, but I believe that they are occasionally cleaned out.

698. But occasionally the filth will accumulate again?—It will.

699. Then do you think that the filth nuisance has gradually been accumulating?—I think that it accumulates at times, and is gradually cleared away. I remember many years ago being thoroughly shocked at the state of things as I found it.

700. Supposing the surface of the soil there to be for three days of the week or for one day only of the week, covered with an accumulation of excrement, would not the soil gradually become sodden with the infiltrations from this filth?—I should presume so.

701. Then in your opinion has the soil of some of these districts been becoming from year to year more and more sewage-sodden?—I can only draw my inference upon that point as you have done. I do not really know, but I know that there are very many places existing in Sandgate which contain very comfortable and commodious dwellings. It depends so very much upon the class of the tenantry.

702. Is it conceivable or tenable that this nuisance of the state of the soil should not have been increasing from year to year in many of these districts? Is it comprehensible?—I cannot say any farther than any stranger might. It is only just the inference which anybody may draw for himself.

703. Supposing then, one should come to the conclusion that this great sanitary defect of certain bad districts has from year to year been becoming more intense, do you think it possible that, although the poisonous emanations thence arising in the year 1831 were not then able to reach beyond those bad districts, the malaria there produced in the year 1853 may have been so intense as to spread from the bad to other better districts; and might not this perhaps account for the facts to which you have alluded, namely, that in the late outbreak apparently well situated districts were affected as well as the others?—I really do not think so, and I will tell you my reason for not thinking so: There is a district in this neighbourhood called Spital Tongues, that could not be affected by anything which might occur in the lower district. Now, Spital Tongues was affected to a degree as great as any part of Newcastle.

704. Do you know the condition of Spital Tongues?—I dare say it is not in the condition in which it might have been. But there is another village in this neighbourhood (and I give these opinions with very great regret, because my desire was to connect the disease as much as possible with the want of sanitary provisions), called Whalton, and to all appearance a fine healthy village, and yet an outbreak took place there of the most terrible nature.

705. (*Mr. Simon.*) We should attach a great deal of importance to your opinions on these subjects, from your long experience here, and therefore I dare say you will excuse me pressing you further on one of the points to which you have spoken—the condition of Carliol Square, and Carliol Street—you spoke of those places as illustrating the prevalence of cholera in districts to the best of your knowledge and belief healthy, and in a decent sanitary condition?—Yes.

706. Do you happen to know whether those houses are furnished with water-closets or with privies?—Privies.

707. And behind the privy a dust heap?—And behind the privy, I believe, generally a dust heap.

708. So that the habitual arrangement of those houses is, that the excrements are retained in immediate contiguity to the dwellings for some considerable time?—Doubtless.

709. (*Chairman.*) Are the privies in these streets within the houses or behind them?—Behind them as far as I am acquainted with them.

710. (*Mr. Simon.*) Are the yards of those houses large?—No, they are not large.

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711. The houses are occupied by single families, I presume, for the most part?—Yes; I believe they are altogether so.

712. The inmates of these houses using privies in connexion with dust heaps, there would occur all along that whole row of buildings a certain infiltration of excrement into the soil?—No doubt.

713. These districts then would become, in themselves, foci of that particular unhealthy atmosphere about which we have asked your opinion?—Certainly.

714. (*Chairman.*) Are the back yards of these houses confined?—Yes, they are rather confined.

715. Are there high walls behind the privies?—There are houses which come up a good deal against them.

716. Are there other yards and other privies attached to those houses?—I am not quite aware.

717. Are the houses which you speak of behind them as high as the houses in Carliol-street?—I should think they were.

718. Then, except in the case where the wind should happen to blow directly along the line of these streets, there would be a very considerable stagnation of any poisoned atmosphere in the well, so to speak, between the two rows of houses?—Probably.

719. Do you know what is the sanitary condition of the village you spoke of—Whalton?—Not further than that it is generally considered a healthy village.

720. (*Mr. Simon.*) A pretty-looking village?—Yes.

721. (*Chairman.*) You will be perfectly aware that two or three nuisances, in the shape of beastly ditches, uncleansed privies, and so on, may make the prettiest village in the world a whited sepulchre?—It is quite true.

722. Do you know whether, in Spital-tongues, there are any drains at all, or any privies?—No, I do not.

723. (*Mr. Bateman.*) You know the situation well?—Yes.

724. Is it a high situation?—Yes.

725. Far away from other houses?—Yes.

726. And from its position it should be a healthy place?—Yes.

727. I think I gathered from you that you instanced Spital-tongues as one of the cases, which led you to doubt whether a good sanitary condition would prevent cholera?—I was speaking of Sandgate.

728. If you were told that there were bed-rooms in Spital-tongues fifteen feet by ten and eight feet high, in which seven people slept, that there were no privies, and that all the refuse of the houses was thrown out in front of the houses, would you be surprised at that state of things producing or aggravating an outbreak of cholera?—I should think not, if that is the fact. I was not aware of it.

729. (*Mr. Simon.*) On re-consideration of those circumstances which you were just now good enough to tell us about Carliol-street, do you think that they will, perhaps, account for the prevalence of cholera there, without assuming that it invades healthy districts?—I could mention another locality. There is a gentleman with whom I am acquainted, who lives opposite to Ridley Villas. This gentleman had his house attacked by this complaint, and two of the most fatal and most sudden and malignant cases I ever noticed occurred there.

730. (*Chairman.*) Are not Ridley-villas in immediate proximity to Shield-field?—Yes, but Regent-terrace, to which I am alluding, is on the other side of Ridley-villas.

731. How far is the place to which you allude from Shield-field; is it 100 yards, or more?—150 yards.

732. Is it the fact that Shield-field is totally undrained—frequently covered with stagnant water—that it has been reported for such by inspectors of nuisances, and that the sanitary condition of it is altogether bad?—Shield-field is so, I dare say.

733. (*Mr. Simon.*) Do you happen to know whether, in the neighbourhood of Carliol-square and Carliol-street, the blue clay comes very near the surface?—I believe it does.

734. Supposing then, that in that district there is any such infiltration of excremental juices as there probably may be in the back premises of the streets spoken of, the clay would be likely to retain them, would it not?—It might.

735. There would be some difference as respects the liability of a district so circumstanced to suffer, whether there was a less or greater depth of gravel, through which the filth might have to percolate before reaching the clay?—It might be so.

736. (*Chairman.*) Is it also the case that the place you allude to, Regent-terrace, is about the same distance on the one side, from Pandon and Pandon-bank, as from Pandon-dean on another side, and from Shield-field on the third?—I dare say it is.

737. It is within 100 yards, probably, of these three localities?—I dare say it is.

738. Is it within your knowledge that all of these three places are in a bad sanitary condition?—I think those three places are not in a good condition.

739. Supposing, then, the house of your friend to be thus surrounded on three sides by extensive nuisances within the distance of 100 yards, or thereabouts, do you think that those circumstances would account for the presence of cholera in that house, notwithstanding the comparatively good state of the house itself?—I cannot say. I know that in the neighbourhood where I reside, houses very near us were affected, and the whole street in which I live escaped. I cannot tell why these things are.

740. Supposing every wind that has northing in it to come across large districts in a bad sanitary condition, do you not think that that might be expected to have an effect in lowering the health of such a locality as Regent Terrace, and predisposing its inhabitants to disease?—It think it might. *D. B. White, Esq., M.D.* 20th Jan. 1854.

741. Then you do now entertain the opinion that the recent subjection of the house opposite Ridley Villas to attacks of cholera was a thing totally unaccountable on ordinary sanitary principles?—I can only say, with respect to this question, that in the former epidemic all these places, in which respectable persons resided, escaped altogether; but in this last case both Pilgrim Street and Carliol Street were affected, which, notwithstanding what has been said, were among the class of houses that were generally considered the best.

742. Is public opinion at this moment a very good index of a really good sanitary state as regards houses?—I think the sanitary state is not at all what it should be, admit.

743. When you say that Pilgrim Street is generally considered to be in a good condition, is that decisive on the point?—No; I said that in Pilgrim Street there was a succession of houses which this disease attacked, and in which, as far as I know, all proper sanitary arrangements were adopted.

744. (*Mr. Bateman.*) And they were as good as their neighbours?—Yes, it took a very arbitrary course.

745. (*Mr. Town Clerk.*) You spoke of Ridley Villas and Regent Terrace being visited by the disease; did you mean that they were generally visited throughout their extent?—No; but I saw in Ridley Villas and in Regent Terrace some of the most desperate cases I ever saw in my life.

746. (*Chairman.*) It seems to me, looking at the map, that Ridley Villas is a place situated as it were in the centre between Sandgate, Pandon and Shield Field?—As far as that goes, it is; but the disease dropped in this peculiar way,—along this range of New Bridge Street I believe there was no case; immediately you turned down Carliol Street and into Carliol Square, the disease prevailed to the greatest extent; when you got into Pilgrim Street here in a succession of houses, and opposite here (*pointing out the same*) it prevailed also, making no difference, according to what I can conceive and I have studied it a good deal, between these places, and others more likely to be affected. It went up into Northumberland Street.

747. (*Mr. Simon.*) With respect to the condition of your friend's house in Regent Terrace which you visited, you know, of course, that it was a well-conditioned house; that it was the house of a gentleman?—I believe so.

748. Do you know what was the condition of the drainage of the house?—There were all the facilities of drainage there. Of course I did not investigate further than that.

749. (*Chairman.*) You know that it ought to have been healthy?—Yes.

750. But you do not know whether it was?—No.

751. (*Mr. Simon.*) You are aware, probably, that in the town of Newcastle sewers exist very extensively, without the houses having made use of them, by house drainage into them?—Yes; but I believe that the whole of Regent Terrace is very well drained; this house is very well drained.

752. (*Chairman.*) Do you remember the mortality in Ridley Villas?—No, I do not. I know that I saw a case there of the most intense malignity that I ever witnessed, and in the opposite house, in Regent Terrace, I saw these two cases in this gentleman's family, almost of the same intense character.

(*Here the witness was suddenly called away.*)

Dr. White: Perhaps you will allow me to refer to a statement which I made yesterday, and about which there was some doubt, with reference to certain parts of the town which had been swept down by the approaches to the high level bridge. I alluded to a report which I had written, or joined with others in writing, and which I could not then exactly refer to. Since then, Dr. Humble has found it in his possession. Here are the places to which I refer. We mention particular spots in the town, and several of them have been swept down by the approaches to the high level bridge. *D. B. White, Esq., M.D.* 21st Jan. 1854.

754. (*Chairman.*) The localities which I here find mentioned are Percy Street; does that remain?—Percy Street remains.

755. Newgate Street—does that remain?—It does.

756. Head of Side?—It remains.

757. Foot of Westgate Street?—That is partially swept away.

758. Bailey Gate?—Part of that is swept down.

759. Queen Street?—One side of Queen Street is swept away, and one side of Bailey Gate; but I do not well know all these places.

760. (*To Mr. Town Surveyor.*) Has Castle Garth been affected by the railway?

Mr. Town Surveyor: Yes, a great portion of that has been swept away by the operation of the railway.

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761. Bankside?—A great part of that too.

762. The Close?—A portion of the Close also.

763. (*Mr. Simon.*) A large portion?—No, not a large portion of the Close. It merely crosses over the Close.

764. Butcher Bank?—No—part of Butcher Bank only.

765. Quay Side?—No, not by railway.

766. Foot of Pilgrim Street?—Yes, a portion of that has gone.

767. Silver Street?—No—that remains.

768. Wall Knoll?—No.

769. Sandgate?—No.

770. It is here stated that the worst localities, following the above route, are Mackford's Entry; does that remain?—That remains. At the foot of Westgate there is a Mackford's Entry swept away.

771. Sweeps' Entry?—I do not know the Entry.

772. Meeting House Entry?—That is in Silver Street; that continues.

773. Furs Chapel Lane?—I do not know that.

774. Pot-house Entry?—That is in Sandgate; that still remains.

775. Keel Entry?—That remains. Several houses have been pulled down in Keel Entry; but some portion of the Entry remains: and in a portion of Pot-house Entry some houses have been pulled down.

776. Nag's Head Alley?

Dr. White: That is in existence.

777. Somerfield Entry?

Mr. Town Surveyor: That is in existence.

778. Nimmo's Entry?—Yes, that is in existence.

779. Were all these alterations effected by the passing of the railway?—With the exception of Keel Entry and Pin Entry. Those were not effected by the railway; they were ordered to be pulled down by the Corporation, but the bulk of the others have been by the railway—all but those two places.

780. (*Mr. Town Clerk.*) Pin Entry and Keel Entry are in Sandgate?—Yes.

Dr. White: That was what I referred to yesterday.

781. (*Chairman.*) Those were the points in which you considered that the bad localities, alluded to in the report, had been materially improved?—Yes, some of them have been swept down in fact.

782. More or less?—Yes.

783. Reverting to the evidence you gave us yesterday as to the opinions which, in 1831, you entertained with reference to the usual co-existence of bad sanitary conditions and epidemic disease, and as to the modified opinions you have recently adopted, will you be good enough to state whether, upon re-consideration and re-deliberation, the facts of the recent epidemic would now induce you to modify to any, and if so to what extent, those previous opinions?—My opinions originally, when I witnessed the outbreak of this disease in 1831-32, were, that under ordinary sanitary conditions, and with the ordinary precautions of house-to-house visitation, and attention to medical superintendence, the disease might be almost altogether escaped; but during this last attack I have seen it in some houses, which, though of course I grant they are not what sanitary improvement should make them, yet I should consider to be as good as the average of those in old towns; and I would hesitate in saying that we could do as much as I formerly expected we could.

784. (*Mr. Simon.*) By measures of extemporaneous cleansing?—Yes. What I would wish to say is, that there are many difficulties in this town, I have no doubt inseparable from all old towns, which it is probably impossible for the authorities entirely to overcome. For instance—there is Carliol Street, which I mentioned yesterday, and in which I was last night. Now, I find that the observation which was made by Mr. Newton is absolutely correct to a very great extent. The smaller houses do obtrude themselves upon the better ones, and there is no doubt whatever that these are not in what we should consider a proper sanitary state; but I do not know how you could avoid the evil without pulling down these neighbouring small houses.

785. (*Chairman.*) Then may I understand your evidence to amount to this; that, supposing a bad sanitary state to be radically inherent in an old town, no limited or temporary measures can wholly prevent epidemic disease there occurring?—I doubt whether they can wholly prevent it. I think they might greatly mitigate it. That is the modification of opinion which I wish to express. In 1831 and 1832 I thought that even in the objectionable state in which the old town was and is, the disease under ordinary circumstances might be guarded against; but now I do believe that under ordinary circumstances, there are places in which, if the malignance of the attack is so great as it has been this last time, it cannot be prevented.

786. (*Mr. Simon.*) If we rightly understand you then, you see the necessity for larger and more complete sanitary alterations?—Certainly I do. I would add one word, namely, that in my opinion, if three-fourths of the old towns of England which I have seen, had been attacked in the way that Newcastle has been, they would have had very probably the same mortality. In the report of the Registrar-General, which is one of the things that I wish particularly to make some observations upon, this town has been

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selected, as may be said, for universal opprobrium almost. Now, I believe that probably the gentleman who drew up that report did not at that time know the real malignity of this attack, as compared to the previous one. I remember both these epidemics; I remember the epidemic of 1831 and 1832, and I believe this epidemic of 1853 and 1854 to have been a much more serious one; and I believe, instead of Newcastle being in any degree worse than many other towns, that it stands upon very much the same footing; all of them equally wanting sanitary improvement.

787. This epidemic has been considerably more severe, to your recollection, than the epidemics of 1831 and 1848?—There was a very severe attack in 1848 in the neighbourhood, which I witnessed. I did not see much of it myself here, but there was a small village in the neighbourhood, called Wrekenton, which I was called to, and had the superintendence of—that was in 1849. That small town of Wrekenton was, I say, fearfully affected; but still I believe that the last epidemic was much more severe for a continuance than that of 1831-32, though the mortality on the Christmas night, 1831, in Gateshead, was, I believe, almost unparalleled for one single night.

788. (*Chairman.*) We wished to take a little further evidence from you on that point. You say you consider the attack of 1853 to have been severer than any previous attack?—I do.

789. Do you consider that that greater degree of severity was inherent in any ultimate cause which you may please to assume; or do you think that it may have been due to a greater intensity of local predisposing causes, such as filth and bad sanitary condition?—I do not. I believe it to have been that latent mischief which Mr. Simon has so well alluded to in his late admirable report, and which we cannot exactly specify. I believe that this town had a most severe attack from the beginning, from whatever cause.

790. (*Mr Simon.*) But are there not some local influences, which, as your evidence would lead us to believe, lie at the root of this greater development of cholera in particular places? Are there not some influences that, from 1832 to 1853, would have been increasing in this locality? For instance, the construction of the railway bridge—at the same time that it brought a number of workmen and others into the town—displaced from their habitations a considerable quantity of the poor population, as you have just now shown us? Where would that poor population and those workmen have gone to?—I dare say it would have crowded itself into Sandgate, or wherever it could find a resting-place; but you must understand that a great number of these people, who were here at the building of the high level bridge, would possibly pass away at its completion.

791. In spite of that, however, we find, from the census, that the population has increased very considerably?—Yes; but not, probably, the same class of population.

792. There has been, no doubt, a large increase of new buildings here?—Very large.

793. (*Mr. Town Clerk.*) Much more extensive than those taken away?—Yes.

794. (*Mr. Simon to Mr. Town Clerk.*) But perhaps of a different class?

Mr. Town Clerk: No—residences for the poor; for instance, some of those objectionable places—Dixon's-buildings.

795. (*Chairman.*) That is in Westgate, in the suburbs, is it not?

Mr. Town Clerk: It is.

796. (*Chairman.*) Let us take the question of the state of the soil at large. We have evidence from our own eyes, and also from many witnesses, that the surface of a large proportion of the thoroughfares in this town is habitually loaded with excrement. Supposing those thoroughfares to be, every one of them, carefully swept out at least once a day, so that this mass of excrement should remain but for a few hours of each day on the surface of the soil—would you doubt that the effect of the rain and other atmospheric influences would be, that a large portion of that excrement would gradually sink and sink into the soil, daily more and more?

Dr. White: I dare say it would.

797. Do you doubt, then, that the state of the soil here has gradually been getting worse from year to year?—I should suppose the evil would increase as years went on. I must naturally draw that inference.

798. (*Mr. Simon.*) But that evil would affect the higher districts of the town, as well as the lower?—I should think it must contaminate the air to a certain extent on all hands. I cannot say how far.

799. (*Chairman.*) Would you not, then, suppose that, with such an increase of this poisonous state of the soil, there would also be an increased intensity in the malarious exhalations thence arising?—I dare say there would.

800. Supposing, then, an ultimate virus, or atmospheric poison of the same intensity, to come at successive epochs into a place, in which a local predisposing cause, such as malarious exhalations from the soil, was gradually increasing, would you not expect the result of that to be, that there should be an apparently increasing severity in the successive attacks?—In the places where it existed I should naturally anticipate that it would be so.

801. We want to know what evidence there is to displace, as we may say, the *primâ facie* presumption, that this increased severity of the cholera in 1853 has been owing, not to any increase in the ultimate malignity of the virus, but to the, as it seems to us, inevitable increase of malignity in these predisposing local causes?—In the first place, I doubt much whether there has been an increase in these local causes, and for this reason:

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I went down myself and examined Sandgate, and I found it in a very much worse state than I did subsequently. Of course, as I have previously told you, for the last few years I have not seen much of Sandgate, but I do not question that, previously to our inspection, accumulations had lain there for a very considerable time, which subsequently were not allowed to accumulate to that extent.

802. Do I rightly understand you to say that, on your subsequent inspections of Sandgate, you found the surface of the soil in a cleanlier and better condition than you did at your first?—I found there was less accumulation. There were cart-loads upon cart-loads of horrible and offensive stuff in these places when I first examined them. We brought this before the authorities, and the authorities removed them; and subsequently, for some time, I know they were much cleaner than they had been before.

803. Admitting that the condition of the thoroughfares was from time to time better than it had been in previous years, do you doubt that the bulk of the soil below was in a worse state in the autumn of 1853 than it had been in 1831?—I cannot say. I know this, that at the time I witnessed it it was better than it had been previously. There is another reason why I should think Sandgate better, and that is, that since then there have been drains placed in some parts; but my opinion of Sandgate is, that it will never become much better, till it is all swept away.

804. Still, to get rid of that point, can you doubt that, under the circumstances of the case, a vast mass of decomposing organic matter is daily and hourly passing into the soil of the thoroughfares of the town?—I dare say it is.

805. Then how can you doubt that the virulence of this particular predisposing local cause—at least, I mean the poisonous state of the soil below—was more intense in the autumn of 1853 than in the autumn of 1831?—I grant you that; but, at the same time, I think that there is more care taken now in preventing those horrible accumulations than there was in former days, which will probably more than counteract what you have alluded to. That is my opinion.

806. (*Mr. Bateman.*) You think the balance of affairs is in favour of 1853?—Yes. When you take into consideration the drains, which there are now, and the removal of the cart-loads of offensive matter, it is in quite as good a state as it was.

807. Would you express a stronger opinion, viz., that it was in a less noxious state in 1853 than on previous occasions?—I would not like to enter upon a statement of that sort. But there has been drainage introduced; and there have not been allowed, as far as I understand, the same horrible accumulations which existed before. I brought the matters before the local authorities, who then acted upon it; and heaps of cart-loads were removed at the time.

808. (*Mr Simon.*) You have attributed some importance to the fact, that within the last few years drains have been made in Sandgate?—Yes, I have understood they have.

809. The advantage of drains, I presume, you would conceive to lie, in a great degree, in their carrying away house refuse?—Yes.

810. Are you aware whether many houses in Sandgate communicate with sewers?—I am not.

811. If there were official evidence before you to the effect, that in Sandgate, the fact of a house having any means of discharging its refuse into the drains through the ordinary channel of a house-drain was exceptional—that, speaking generally of that mass of buildings, the houses had no privies, and that the excrements were flung abroad into the street; would you still conceive that the drains there established, but serving very little use as regards the houses, exerted an important sanitary influence?—If they were not used, I should certainly think they were not of any very great value; and I should think, further, that an imperfect drain was probably worse than no drain at all—that I can agree to.

812. If, then, in traversing that district, you found, as a general rule, that the houses were without privies, that the sewers did not drain the houses, and that the gratings of the sewers were scattered over with excrement flung from the houses, you would doubt the utility of those drains in a sanitary point of view, and the importance of the improvement thereby effected in the district?—Undoubtedly.

813. As respects the accumulation of filth generally, suppose it appeared in evidence that, at the time of the late outbreak of cholera, all about the poorer habitations of the town where cholera prevailed, there were more or less considerable accumulations of refuse matter, should you think that that would counterbalance to a great degree the influence which you have attributed to the previous removal of certain large masses of refuse?—I should.

814. And if such small gatherings of filth had been pretty generally diffused over the area of Newcastle, would that, in your judgment, account for a pretty general diffusion of the disease?—I cannot tell how far it might operate. I should certainly think it would have a noxious influence, generally speaking. I grant that.

815. Supposing that such influences were more generally diffused over the town in 1853, and over a wider area than on the occasions of the former epidemics, would you expect the disease similarly to be diffused over a wider area?—I should, undoubtedly.

816. Perhaps, then, in the first instance, we may not have been able altogether to bring out what are your opinions—which we are very anxious to obtain—as to the relation existing between epidemic diseases generally and the presence of defective sanitary con-

ditions. Will you have the goodness to state to us, without reference to any particular question that we may have asked, but generally, what are your views of their relations in this respect?—I have no doubt of the enormous influence of sanitary conditions upon any epidemic which may prevail.

817. (*Chairman.*) How was it that you accounted to yourself for the lightness of the attack of cholera in 1848-49?—I really cannot tell you, any more than I can tell you the reason why a typhus fever occasionally visits us with greater severity at one time than another, all the other local circumstances being, as far as we know, the same.

818. (*Mr. Simon.*) As a member of the Medical Committee of the Sanitary Association, you, about that time, communicated a report, containing the following passage, to Mr. Rawlinson—"The comparatively few cases of malignant cholera which have occurred in "Newcastle supply, we think, amply sufficient evidence both of the invariable dependence "of attacks of this epidemic on certain predisposing physical causes, and also of the "necessity for continued vigilance on the part of the authorities"?—Yes.

819. Does that substantially express your opinion?—Yes. I should think, of course, generally speaking, that the sanitary condition of a place would influence the cholera; but every medical man knows that all kinds of diseases attack with more or less malignity at different periods, and from causes which it is very difficult to explain.

820. (*Chairman.*) We have had from the reports of the medical institutions here, of which you are physician, definite expressions of opinion upon this point. For instance, in respect of the year 1849-50 being healthy as regards zymotic disease, Dr. Headlam in his report to the fever hospital for the year 1850, page 7, stated that, in his opinion, it was attributable in a considerable degree to the sanitary measures of removing the accumulations of decomposed animal and vegetable matter from the most crowded parts of the town, which had been adopted in consequence of the prevalence of fever in the preceding year, and in anticipation of the approach of epidemic cholera; and in a pamphlet with reference to the history of the water supply here it is stated, that it was generally considered that the lightness of the cholera here at that time was due to the recent cleansing of the town, and to the abundance of water at the time. Do you agree with the opinions there expressed, or do you wish now to modify them?—I think from what I have seen of this epidemic, that had the same malignant influence prevailed in 1848-9, as prevailed in 1853, it would have been a very different attack. I think that originally this last was a much severer attack than any that we have yet been visited with.

821. (*Mr. Simon.*) There is a question which we should like to ask you, although it does not fall very importantly within the range of our inquiry; but you have alluded to Wrekenton?—I have.

822. Were the sanitary conditions there good?—Not very particularly so; they were just what large villages generally are.

823. (*Chairman.*) Is it within your knowledge, that Wrekenton, though situated nearly 500 feet above the level of the Tyne, is situated in a shallow basin, having no natural means or possibility of drainage whatsoever?—I am not aware of that.

824. Are you aware that, on the occasion of the outbreak there, its sanitary condition was altogether very unsatisfactory?—I believe that its sanitary condition is not very favourable.

825. (*Mr. Town Clerk.*) What would you say of it in comparison with other pit villages?—I should say that it was very similar, as far as general appearances went. I have never strictly entered into an investigation of the matter, so as to be able to give an opinion which would be very important.

826. (*Mr. Simon.*) Reference is made in a report by Mr. Rawlinson, which is before us, on the state of the borough of Gateshead, which includes Wrekenton, to Ship Lane and Hosegood Square there. Do you recollect those places in Wrekenton?—I do not.

827. Places behind the Ship Inn?—I know the Ship Inn.

828. It is stated in this report; "We saw one or two rooms in this locality"—which I believe was the locality where the cholera not only commenced, but was most fatal—"with direct openings into ash-pits. These rooms were, during the prevalence of cholera, "inhabited by muggers, tinkers, and broom-makers;" and it is further stated, and I believe in respect of the same houses: "These houses at the time formed a nest for "tinkers and muggers, who were continually coming and going, and who located themselves rent-free, or paid very little rent indeed, and lived huddled together (four or five "in a house) with horses, asses, dogs, and in one case pigs; the ashes and other accumulations being allowed to collect in a corner of the room?"—I believe that to have been the case—I did not visit it. There was a hand-bill published by the inhabitants, in which they ordered these people to absent themselves immediately, or worse consequences might follow.

829. "And not only did the inmates vegetate, and behave much in the same way as "Mr. Schorey mentions in his report on the lodging-houses of Gateshead"—which refers to some of the evils of overcrowding and a state of things similar to this—"but females, "besides males and children, often come out into the lane to obey the calls of nature in a "state of complete nudity." Do you believe that to be substantially true?—I dare say it is true. I heard a very bad account of them when I was up there. Of course I had no personal knowledge of the matter.

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830. Then although Wrekenton may enjoy the advantage of being situated 500 feet above the level of the Tyne, you would not doubt that, with the condition of things here described, there might have been about the houses quite as great sanitary evils as any lowness of level could have produced by its interference with the drainage?—I think so.

831. (*Mr. Bateman.*) You spoke of the removal of noxious parts of the town by the High-level bridge; and to a question asked by Mr. Simon, you answered, that the probability was, that the people driven out from there would go into Sandgate?—Yes, at that time.

832. The consequence of which would be to overcrowd Sandgate?—Very likely.

833. Are you aware of the real facts of the case?—I only imagine so, because they had certainly been expelled from there, and they would naturally fix their residence in some similar locality. I only draw an inference; I know nothing of the actual facts.

834. Perhaps you did not take into consideration, when you gave that answer, the extension of buildings, suitable for the habitation of those people, which might have occurred in the surrounding district?—I think that very likely this railway sweep would take place too suddenly for any such buildings to be erected in time; but, as I stated, I believe that a great number of the other parties that were alluded to, the parties who built the High-level bridge, would, of course take their departure when the High-level bridge was built.

835. (*Chairman.*) We read in the reports of some of the medical institutions, I think I may say in almost every report, that catarrh and rheumatism, and certain other diseases, have prevailed "as usual;" would you concur in the opinion which ascribes such diseases as catarrh and rheumatism very considerably to the damp state of houses built on, or against banks of, insufficiently drained clay?—I should think that exposure to wet and damp would be likely to produce both rheumatism and catarrh.

836. Would you concur in the opinion which ascribes cases of ague to the effects of the undrained surfaces of agricultural districts?—Yes.

837. Is it within your knowledge that within a few years, some twenty or thirty, ague, which used once to be a very common affection here, has all but ceased to exist?—It is true to my own knowledge.

838. Do you think that the cases of catarrh and rheumatism have decreased in a similar proportion?—I cannot say. I am not aware whether rheumatism or catarrh has diminished or not.

839. You could state whether they have disappeared altogether?—They have not certainly.

840. Do you think that they have, in any material degree, decreased?—I am not aware that they have.

841. Would you from thence be inclined to concur in the inference which might be drawn, that the drainage of the agricultural districts, round Newcastle, has of late years increased more rapidly than the improvement of the town in those respects has?—I cannot say.

842. I think you expressed an opinion, not very different from that expressed by Mr. Lee, viz., that there were some parts of the town which could hardly be made healthily habitable?—I think so.

843. (*Mr. Simon.*) Which might advantageously be "bombarded?"—Exactly.

844. (*Mr. Bateman.*) I suppose a lucifer match would do as well?—Far better.

845. (*Mr. Town Clerk.*) As they cannot be reformed they must be destroyed?—Yes.

846. You have not calculated the cost of that process?—No; I believe that that is the cause of the delay. I may mention that it is very singular that Wrekenton has recently escaped; and I am not at all aware that there is any difference in the state of Wrekenton at this moment from what it was in 1848-9.

847. (*Chairman.*) Would you guarantee Wrekenton through 1854?—No, I would not.

848. (*Mr. Bateman.*) Had there been any circumstances previous to 1853, in the prosperity of the town, or the employment of the lower classes, which might have led to any sudden overcrowding previous to, or in, 1853?—I think the state of the locality has been highly prosperous in the period which you have mentioned.

849. Do you think that the prosperity has been among that class of people which would congregate in the old parts of the town?—I think that, generally speaking, all the lower classes have participated in the prosperity of the late time.

850. Do you find that in prosperous times overcrowding is greater or less than in times of distress?—I cannot answer that question.

851. (*Mr. Town Clerk.*) Is the consumption of ardent spirits more or less in prosperous times?—I should think the consumption of spirits is very much in proportion to the receipts of the parties, I am sorry to say.

851A. (*Chairman.*) Cæteris paribus, I suppose a prosperous condition of the working classes is conducive to the public health, and adverse to the spread of epidemic disease among those classes?—I dare say it is.

852. Poverty is itself a serious sanitary defect; is it not?—I believe it is undoubtedly.

853. You are, and I believe have from the beginning been, a director of the Whittle Dean Water Company?—I have.

854. We wish, notwithstanding that, to take your opinion on the question of the water. Ordinarily you believe the water to be good?—I do.

855. What, in your judgment, was the character of the water, say about the beginning of July, when they began to pump from the Tyne, or rather just before they began to pump from the Tyne?—I heard no complaint of it until about the period when that commenced.

856. You had, no doubt, your attention drawn to the state of the water, after they began to pump from the Tyne?—I had.

857. Did you think it requisite, as a medical man, to make any suggestions to your patients, relative to the use or disuse of it?—I did not.

858. Are you of opinion that the water of the Tyne was desirable for drinking purposes?—The water of the Tyne was not such as I should have preferred or recommended; certainly not.

859. Do you entertain no stronger opinion than that?—I certainly do entertain a strong opinion against the water of the Tyne, and have no hesitation in stating it; and if any alternative or resource had been left, it would not have been adopted. It was as much against the wish of the directors as could be.

860. I think in the prospectus, put forth at the time the company was formed, it was stated that the complaints of the quality of the water obtained from the Tyne were then universal and loud?—Yes.

861. Would you consider that the quality of the Tyne water had in any degree improved between 1845 and 1853?—No; I do not think it had.

862. Then would you think that the water of the Tyne was as justly to be objected to in 1853 as in 1845?—I think it was objectionable; it was a matter which we should have avoided if we could.

863. Have you expressed the whole of your opinion upon the subject?—I think so. I give it unhesitatingly, for I consider that the company is not at all interested in any disguise of the matter. We did not resort to the Tyne except upon absolute compulsion. If there had been any other means open to the company, they would have adopted them; and they only did it at the last, failing all others.

864. In your opinion would it have been desirable for the benefit of the poorer classes in this town, that baths and wash-houses should be established?—Most certainly.

865. Are you aware that about the year 1848, one establishment of the kind was instituted?—I am aware of that.

866. I see in the fever hospital report for the year 1850, page 7, Dr. Headlam stated that the introduction of the washing and bathing establishment in Sandgate had had a most salutary effect. Do you concur in that opinion?—I have no doubt about it.

867. Dr. Headlam then goes on to say, "So decidedly beneficial has been its success, that I hope to see it, in a short time, extended to other populous districts of the town." Would you have concurred in that opinion?—I would.

868. Has that hope been realized?—I am not aware that there have been any more built than that one.

869. Have you ever heard any allegations as to the state of that one establishment; of the extent of which the poorer classes do avail themselves of it, and of the extent to which, under other circumstances, they might have availed themselves of it?—No.

870. Have you any opinion to offer with reference to the gas of this town?—No; I have not.

871. Do you use it in your own house?—I do not.

872. Supposing it should appear that the quality of the gas is such as to evolve, on combustion, considerable quantities of sulphurous or sulphuric acid, do you think that that would be likely to exercise a prejudicial effect on the public health, particularly in respect of shopkeepers, who use it largely in the rooms in which also they live?—I cannot speak as to its effect upon the health, but I have very little doubt as to its effect upon property. The bindings of books and perishable articles, I dare say, might be injured, if there were a large quantity of sulphuric acid evolved.

873. Do you think that any such acids could be evolved in a quantity sufficient to damage the bindings of books, without also damaging the health of those who should live for many hours of the evening, or night, exposed to the same emanations?—I should think that very probably it might have that effect; but I have simply an opinion.

874. Considering the ordinary state of the dwellings of the poorer classes in this town, do you think that it would have been desirable for the local authorities to avail themselves of the provisions of any public statute which might be in force, enabling them to provide model lodging-houses for those poorer classes?—I think that the authorities should have done everything they could, especially in a town like this, where there are such horrible places existing.

875. And if, by any local acts, the local authorities should have been empowered to make regulations for the management of common lodging-houses, for keeping them

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clean and wholesome, for cleansing filthy and unwholesome dwellings, and for fixing and enforcing penalties for the breach of any such regulations, do you think it would have been desirable that those powers of the local acts should have been put in force?—Undoubtedly.

876. (*Mr. Simon.*) Do you think that the water of the Tyne is, in its quality, such as to be likely to produce diarrhœa?—I am not aware that, at the time when almost the whole of the water that was supplied to the town was supplied from the Tyne, there was any great amount of diarrhœa prevailing.

877. Probably you are aware that, supposing there were some slight purgative quality in the water, the system, by long use, might get habituated to it?—I quite agree to that.

878. Accordingly, the fair test of its operation in this respect would be whether it produced any aperient action upon a stranger; or whether, after a long disuse of it, a return to it would produce a purgative effect?—I quite agree to that.

879. From your knowledge of its contents, do you think it likely that it would act in any degree as an aperient or laxative?—I am not aware of its having done so. Of course, we know very well that pernicious properties existing in water will create diarrhœa.

880. Do you believe that it contains a large quantity of organic matter?—I believe that it contained a large quantity of organic matter, undoubtedly.

881. Do you believe that in hot weather, and when the temperature of the river would be considerably raised, that organic matter would be likely, at all events in susceptible persons, to produce diarrhœa?—I would not like to speak about its producing diarrhœa, but I could have no doubt that water containing organic matter would be very injurious.

882. (*Chairman.*) Supposing it should appear that the water of the Tyne, on the 17th of October 1853, contained 4·5 grains of organic animal matter in a state of decomposition, and 2·6 grains of organic vegetable matter in the same state, would you consider that water containing such an amount was calculated seriously to affect the public health?—I certainly would not recommend anybody to take such water, but, at the same time, all these matters must be matters of investigation, and I believe an investigation was entered upon; and I believe further, that that investigation did not tend to show that the Tyne water was more deleterious than the other waters around.

883. (*Mr. Simon.*) What would be the alternative to the drinking of the company's water in Newcastle?—There would be nothing but the pants and wells; but you must understand that never, during the whole time of this pumping from the Tyne, did we take more than one-third from the Tyne.

884. Would you consider the pants and wells likely to be free from organic admixture?—I have understood that some of them are not quite free.

885. (*Chairman.*) Supposing it should appear that the geological character of the soil is as follows:—A hard blue clay below, hollowed out, here and there, into what are called "bowls," or "pot-holes," filled with sand, or alluvium, or peat, or other form of earth capable of imbibing, and, with the blue clay below it, of holding a great quantity of water; supposing it should also be stated that on the top of this is a stratum, which sometimes is brick clay and sometimes a strong loam, but which is so veined with irregular beds of sand and gravel, that surface soakage percolates to a very great extent into many or all of these pot-holes; would you, then, suppose that the water drawn from these pot-holes would—considering the filthy state of the surface in many districts of this town—be likely to be free from the admixture of organic remains, or similar deleterious ingredients?—I should not certainly make choice of a well of the kind which you particularize, but I am not aware of what the facts of the case are.

886. Supposing that to be the geological character, do you conceive it probable that you would get pure water from such sources in Newcastle?—I believe some of the wells have very fine and pure water.

887. (*Mr. Simon.*) Do you speak from testings?—Not from chemical testing.

888. In general terms?—Yes. I may mention in reference to that, that in the house at Regent Terrace, which I mentioned yesterday, that individual gentleman took alarm from the general rumours that were spread respecting the Whittle Dean Water Company, and, a fortnight before the desolation spread into his family, ceased from taking their water and had recourse to a well in his yard, and it was the well water which they were drinking at the time when this dreadful visitation came upon them.

889. (*Mr. Bateman.*) Do you know how long that well in his yard had been unused?—I do not.

890. Or the character of the pump which raised the water?—I do not.

891. (*Chairman.*) Have you considered the instance of the exemption or comparative exemption of the garrison here during the late outbreak?—The exemption did not extend generally, as far as I understand from the surgeon's report. There was a very general run of diarrhœa cases.

892. Would you doubt that out of the 451 cases of diarrhœa which there occurred, some at least might have proceeded into the more developed stage of cholera, supposing no precautionary measures had been adopted?—I think it is likely they might have done so.

893. Are you, from your general knowledge of the town, aware of any particular natural circumstances which should tend to make the situation of the barracks more healthy in any respect than the districts immediately around them?—No, I am not.

894. You do not know of any difference of soil?—No.

895. Or level, or exposure, or climate, which in any material degree would produce a difference of healthiness?—No, I am not aware of any.

896. Are you aware that in a district called Spital Tongues, within, I believe, 250 yards of the barracks, the mortality was very considerable?—I have understood it was.

897. Have you heard that hardly a cottage there escaped without numbering one or more deaths among its inmates?—I have heard that it was very fatal in that locality.

898. Supposing, then, that it should appear that the officers of the garrison took very active precautionary measures in respect of cleanliness, diet, and prompt treatment of the diarrhœal cases, would you concur in the opinion that the immunity of the garrison from any cholera cases was owing mainly to these precautionary measures?—I think to a very great degree it might arise from the precautionary measures adopted. I think it is very probable.

899. Supposing a local authority had existed in Spital Tongues, and had commenced improving the sanitary condition of Spital Tongues at the same date and with the same energy with which the officers of the garrison commenced improving its sanitary condition, do you see any reason to doubt that the mortality in Spital Tongues might, at all events, have been greatly mitigated?—I have no doubt it might have been greatly mitigated. Of course I am well aware that in the barracks there is a discipline and order which would conduce perhaps to render less noxious the influence of the epidemic.

900. I did not ask you whether you thought that a complete exemption might have been obtained for Spital Tongues as for the garrison, but whether the mortality in Spital Tongues might not have been considerably mitigated?—I quite agree to that.

901. As a last point, we have had brought under our notice, as you probably are aware, statements more or less inculpatory of the Board of Health, or of its officers; and we would wish you to express, in a perfectly unfettered manner, your opinions on the subject?—Owing to the authorities of the board of guardians not having done me the honour in the slightest degree to consult me upon the question, I scarcely became acquainted with those gentlemen; but, as far as I could understand of their proceedings, I certainly consider that their conduct was praiseworthy and active, especially Dr. Gavin's.

902. Would you countenance any charge, in any form, against any of them?—I would bring no charges against these gentlemen; but I would, with that same candour which I trust I have shown throughout this examination, certainly not extend my approbation to the whole proceedings of the Board of Health. I am of opinion that this disease was notoriously fast advancing into this locality; and I think that it would have been better—I mean if the Board of Health had the power (I am only speaking on the supposition of their having had the power)—that some precautionary means should have been taken as respects the coming on of this epidemic, before these gentlemen came down.

903. Do I rightly understand you to say, that your experience of this recent case induces you to entertain the opinion, that it would have been desirable for the Board of Health to have been able to interfere authoritatively at an earlier period than that at which they did?—Undoubtedly that is my opinion.

904. Have you anything further to state on this point?—No, I have not. I think, if it had been attended to earlier, the disease might have been mitigated in its form; especially if an organization had been carried through, as at a former period.

905. If you have anything to add to the evidence which we have already elicited from you, we shall be happy to receive it?—No, I have nothing to say, further than that I perhaps may mention to you as interesting, especially to Mr. Simon, a fact which occurred here some years ago, as proving, in my opinion, by experimental process, the absolutely contagious nature of the disease. In the year 1848 a friend of mine, Mr. Gregson, called me to see a case of cholera to which he had had his attention drawn in West Clayton-street. I went to this place, and I certainly found, in a very healthy tenement, a man, a navvy as he is termed—a kind of sub-contractor—in the most perfect state of cholera. At that very period there was no diarrhœa, that is to say, none to attract attention, and no cholera cases occurring in the town. I attended this man in conjunction with Mr. Gregson, and the man died. I inquired into the circumstances, which were these. The disease at that time was existing in Coldstream. This man was one of a family of sub-contractors who took pieces of work, and were then working on the railway. His brother

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had been taken ill, and the man had come into Newcastle: he had taken fright, and by the time he had got to Newcastle he was very ill, and the disease went on after he arrived here. The family had every comfort—you may almost say luxury—for the working classes, and the house was as good as any house need be, and none of the rest of the family had been up in that place. There was not another single case existing in Newcastle; nor was there any extraordinary diarrhœa. His mother nursed him; and the mother took the disease and died. Three or four of the other parties connected with him, relatives, also took it but slightly. I believe the old gentleman also took it rather severely. But the result was, that the man himself died; and he communicated it to his mother, and she died, and the rest did not—it ceased there. Now, what I was going to say was, that my opinion of the disease is that it is both contagious and epidemic; and consequently, if there had been an epidemic influence at work in this town at that time, the disease would have spread.

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906. (*Chairman.*) You are physician, are you not, to the dispensary and to the fever hospital of this place?—Yes.

907. How many years have you been connected with them?—As physician only since the year 1852, but as resident medical officer from the year 1838.

908. Were you also secretary to those institutions?—I was.

909. Have you not practised for many years in the town?—In the institution only, till within the last year and a half.

910. Would you, from your knowledge of the reports of the dispensary, and of the fever hospital, be inclined to concur in the statements of facts there made, regarding the different epidemics which, at various times, visited Newcastle?—I would.

911. Did you hear Dr. Headlam's evidence yesterday?—I did.

912. Do you concur in the expressions of opinion with reference to the causes or aggravations of those different epidemics, which, in taking Dr. Headlam's evidence yesterday, I read out of the reports of those institutions?—Certainly.

913. We may take both the statements of facts, and the expressions of opinion, as meeting with your approval?—Yes.

914. In the fever hospital report for the year 1848, at page 10, Dr. White says, "nothing "can be more ingeniously adapted for the engendering or disseminating of infection than "the tramper's boarding-house, or the tenemented dwellings of the lower Irish. Here fever "has its constant home." Would you concur in the expression of such an opinion?—I should concur in it in a general sense. I would not for a moment say that in such a house fever was never absent.

915. (*Mr. Bateman.*) You would read "seldom" for "never."—Yes.

916. (*Chairman.*) Were you a member of the Newcastle and Gateshead Sanitary Association in 1847-49?—I was.

917. Did you, at that time, make any personal inspection of any districts in Newcastle?—With Dr. White I did; of part of the south side of Sandgate.

918. Was that the corporation side, or the other?—I believe that a good deal of corporation property is on that side—on the river side.

919. From your acquaintance with those localities, would you consider that those districts have been materially improved since the date of your report in 1848?—I have not visited those districts lately—not within this last year and a half—but at that time I should consider they were much in the same state generally as they had been previously.

920. At which time do you mean?—A year and a half ago. I did not consider that there was much difference in the general appearance of the district.

921. That is to say, you consider that no material improvement had taken place between 1848 and 1852?—Except that certain of the houses had been closed which were formerly inhabited, and some of them pulled down.

922. Is it within your knowledge that certain houses, in badly infected districts like Sandgate, had then been shut up by the local authorities?—They had ceased to be inhabited. I am not aware whether they had been shut up by the authorities or not; but they had ceased to be inhabited.

923. Do you know whether they have ever since been re-inhabited?—That I cannot say.

924. Had you, at the time of the recent outbreak, such a knowledge of the localities which you had previously examined, as to enable you to say whether the expression, "there fever has its constant," or frequent "home," would have been as applicable to them in 1853 as in the year 1848?—I had no such acquaintance at that time.

925. (*Mr. Simon.*)—In the discharge of your duty as visiting medical officer before you were physician, in the days when you were resident medical officer to the Fever

Hospital, did it form any part of your duty to represent to any authorities whatsoever the condition of those houses which you visited?—Not at all.

926. Did you, however, occasionally do so?—I am not aware that I did make any such representation.

927. (*Chairman.*)—Were you in the habit, as such resident officer of the Fever Hospital, of visiting patients at their own residences?—As resident officer of the dispensary I was.

928. So as to make you personally and intimately acquainted with the state of their residences?—Yes.

929. During about what years were you in the habit of making such visits?—Constantly from the year 1838 to 1852, with the exception of certain periods at which illness prevented me.

930. (*Mr. Simon.*)—During those fourteen years, were you able to trace any progressive improvement in those localities?—I cannot say that I was. There were improvements made from time to time; but when the whole of these alleys are cleaned out, and are perhaps perfectly clean one week, the next week they are just as bad as ever; so that the progressive improvement, I should say, was very slight.

931. (*Chairman.*)—Do you think that that recurring filthiness about the dwellings of the poorer classes is owing to any perversity or love of dirt on their part? or is it owing to the want of proper accommodation in the dwellings which they are forced to inhabit?—I should say that both those causes were in operation; for in some districts in other parts of the town, where there were better accommodations, the houses of a certain class of people were just as dirty.

932. (*Mr. Simon.*) During the last six years of your service as visiting medical officer a local Act existed, under which the town council was empowered to lay down rules for cleansing filthy and unwholesome dwellings—did you, in your practice as such visiting officer, see in the dwellings of this class any evidence of rules of this nature having been carried into effect?—I cannot charge my memory with seeing the evidence you mention.

933. (*Chairman.*) Would you, from your knowledge of the district, have conceived that any such rules or regulations were in force?—I should not. I am referring now more especially to the Sandgate district.

934. (*Mr. Simon.*) We have before us a very important paper, signed by yourself, in conjunction with several other members of your profession, and addressed to Mr. Rawlinson, at the time of his visit in 1849—being the report of the medical committee of the Newcastle and Gateshead Sanitary Association?—I had forgotten that I had signed such a document.

935. I should like to recall some of the passages of it to your recollection, to see whether you would be willing now to adopt them as a fair representation of the state of things at the time; and I should also wish to have your opinion, as to whether you believe any material change has occurred in the circumstances to which the passages refer. First of all, it speaks of an excessive mortality—of rates of mortality—such as we have before us in the Registrar General's return. It says: "This excessive mortality during "the last few years has arisen solely from zymotic, or epidemic, which are in fact the "most preventible, diseases. Scarlatina, influenza, typhus, and other forms of continued "fever; measles, small-pox, and cholera, are the chief of this group, and the former "have in turn, raged with great severity in this district."—Yes, I perfectly concur in that.

936. "Scarlatina, which raged here with considerable malignity during the year 1846, "fixed its principal seat in the newly-built, but densely-populated and much-neglected, "district situated between Gallowgate, Arthur's Hill, and the barracks—a district described "in one of the reports of the Sanitary Association as constituting a new and rapidly-"increasing town, which has, within the last few years, arisen in the north-western "suburb of Newcastle, and beyond the jurisdiction of the Corporation. These streets "are mostly inhabited by labouring men and their families; and present, in a marked "degree, the physical and moral evils which afflict the poor when deprived of all official "superintendence and protection. Undrained, unpaved, they constitute in winter a "perfect swamp; whilst the summer's sun, acting on the mass of animal and vegetable "refuse embedded in the mire, produces the poisonous exhalations from which fevers "originate. This district is consequently the chief focus whence the epidemic of scarlatina "(which last year ravaged Newcastle) spread its fatal influence; and the mortality here "among the children was excessive." Would you confirm that?—I confirm that.

937. Then comes a paragraph relating to typhus. "To describe the seats of typhus "and other forms of continued fever would be to enumerate all the narrow undrained "alleys in the oldest parts of the town, together with many equally unhealthy, because "still more neglected districts in the suburbs. In many parts of Newcastle, fever may be "said to be never absent, and a continued residence in those unwholesome dwellings is "certain to involve the prostration, and eventually the death of, some members of the

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"family by fever. As an illustration of this statement, we may refer to the statistics of "fever in a notorious locality, during a portion only of the epidemic of 1847, by which "it appeared that in nine rooms in Craig's-court, tenanted at the time of inspection "by 55 inhabitants, there had been, within the three months immediately preceding "our visit, no less than 50 cases of fever and five deaths."—I believe that to be correct.

938. Do you happen, of your personal knowledge, to know whether Craig's-alley is still inhabited?—I believe it is partly so, but not so fully as before.

939. There is one paragraph which is of quite a different character. The report having been made at the close of 1849, it speaks of the recent exemption of the town from cholera, in 1848-9, in connection with certain works of cleansing, then recently carried out by the local authorities, and with the improved supply of water recently furnished to the town; and then proceeds—"The comparatively few cases of malignant cholera which "have occurred in Newcastle, supply, we think, amply sufficient evidence both of the "invariable dependence of attacks of this epidemic on certain predisposing physical "causes, and also of the necessity for continued vigilance on the part of the authorities, "lest this fearful disease, in the event of a second visitation—by no means an uncommon "accident in its erratic course—should exercise a more destructive influence upon the "inhabitants of Newcastle." That clause goes to impute the light visitation of cholera in 1848-9 to the care which was taken by the authorities at that time in extemporaneous works of cleansing. You agree in that?—I quite agree in that.

940. You agree also in the doctrine of the necessity for continued vigilance on the part of the authorities?—Certainly.

941. Would you then infer from the very great severity with which cholera recently prevailed here, that that continued vigilance on the part of the authorities had been absent?—I should say so.

942. So far as your knowledge of the districts of Newcastle extended, or so far as during the prevalence of cholera or just before the cholera, you had opportunity of visiting them, should you have said that their condition was such as to render it probable that cholera, if it reached those districts, would prevail severely in them?—Certainly.

943. In your opinion the state of those districts at that period would, to quote a phrase which is used in one of the fever hospital reports, have warranted the fear of an epidemic disease being generated among them, even without any actual importation of it from abroad?—In many of the districts that would be the case.

944. I suppose during the years that you worked for the fever hospital, you had as much knowledge as any one person here could possibly obtain of the degree in which fever prevailed in the several localities; and as complete a knowledge of the geography of fever as any other practitioner here could have?—I think I had as many opportunities of knowing.

945. It was your business to know the residences of the several fever patients?—Of those who were patients of the dispensary.

946. And your experience on the subject goes to confirm the sense of the paragraphs which I have read, as to the universal association of that disease with defective sanitary conditions?—In many districts certainly.

947. Do you happen to know Ridley Villas?—I have passed them. I am not acquainted with the state of the houses in them.

948. Carliol-street and Carliol-square do you happen to know?—Yes; but they are not inhabited, generally speaking, by dispensary patients.

949. Do you happen to have any knowledge of their anatomy as regards privy arrangements?—Some slight knowledge of it. I believe that the privies are behind the houses, and chiefly in small yards.

950. Are they privies or water-closets?—Privies I believe. I have not seen a water-closet in that street; there may be water-closets, but I have not seen them.

951. Is a water-closet a rare phenomenon in Newcastle? In the poorer districts it is certainly.

952. In the richer is it infrequent?—I should say so.

953. Is the ordinary arrangement then, that of having an open privy in connection with the house?—Among the better classes in several streets it is so.

954. So that speaking generally of Newcastle, without distinction of rich and poor, but only numerically, you would confirm the impression that has been given to us, that a large proportion of the population is altogether without privy accommodation, and that where there is accommodation of the kind, in the majority of cases it is an accommodation by open privies and not by water-closets?—Yes, in the majority of cases; I am merely giving it as an opinion; I cannot speak statistically of the matter.

955. It is very important, as far as we can, to establish whether cholera has or has not occurred in any considerable groups of cases in really healthy neighbourhoods. Carliol-street has been mentioned to us as an illustration of it: it has been said to us, "This

"disease certainly does visit low places, but it is not essentially associated with defective "sanitary conditions, for see—it occurred in Carliol-street, in very good houses, well tenanted by decent people, and always kept sweet and clean. How far would your opinion go with that statement?—I cannot give an opinion, inasmuch as I did not see a case of cholera in Carliol-street, and was not aware, until this moment, that there had been any cases there.

956. How far should you think that argument invalidated by the fact that there were open privies in immediate connection with the houses there?—I should say that the connection of open privies with houses is exceedingly detrimental to health, and that anything which was detrimental to health would further the development of cholera when the epidemic was raging in the town.

957. That it would in a certain degree (perhaps in a great degree) furnish that kind of atmosphere, which the evidence leads one to believe to prevail in its intenser degrees in the lower districts of the town—an atmosphere predisposing to epidemic disease?—In a less degree it would.

958. You would not consider those houses as unexceptionably healthy?—I should consider no house unexceptionably healthy, which had an open privy in close contiguity with it; more especially where there were no means of ventilation to sweep off the effluvia arising therefrom.

959. And in that locality means of complete ventilation do not exist?—I believe not.

960. (*Chairman.*) Would you, from your general knowledge of the state of Carliol-street, and Carliol Square, be disposed to concur in an assertion to the effect, that they presented an exception to the ordinary doctrine, that cholera and bad sanitary condition were almost always to be found together?—I should not say, with the exception of the privies, that these houses were in a bad sanitary condition.

961. (*Mr. Simon.*) But taking the condition of the privies also as an element in the case, should you say so?—I should say certainly, that they were not in an unexceptionable condition.

962. (*Chairman.*) Dr. White, in his evidence, first stated to us that, although previously he had entertained very strong opinions in reference to that doctrine—namely, that cholera or epidemic disease was seldom or ever to be found apart from bad sanitary conditions—his opinion had since been considerably modified by his experience of the recent outbreak; and he quoted to us these places as instances or materials from which he formed that modified opinion. Would you then consider that the occurrence of cholera in a place like Carliol-street, having obviously bad sanitary arrangements, in respect of privies at least, would constitute a valid exception to the previous doctrine?—I would not.

963. (*Mr. Simon.*) Supposing that the atmospheric decomposition of organic impurities arising from the soakage and evaporation of excrement, played an important part in the predisposition of a district to cholera; should you say that this influence existed in an appreciable extent in Carliol-street?—I am scarcely sufficiently well acquainted with the street to be able to say so; because these privies may have been, for anything I know, cleansed out very frequently, and the refuse may have been removed so frequently, as to render them very much less prejudicial to health than is supposed.

964. But would any practicable frequency of cleansing prevent the soakage of ordure and urine into the soil?—It could not do so.

965. (*Chairman.*) Supposing an all but model house to be existing in a locality, which we will term Ridley Villas, and supposing it to be surrounded on several sides with decidedly pestiferous localities, would you consider the appearance of cholera in that house to constitute any exception to that same doctrine—that filth and cholera are almost always co-existent?—No; for the inhabitants of that house would, in all probability, be breathing the exhalations from the localities to which you are referring.

966. (*Mr. Simon.*) Have you paid attention to the meaning of rates of mortality, as shown, for instance, in this statement by the registrar general?—No.

967. You have not turned your attention to the difference of death-rates prevailing in different towns in England?—I have not.

968. (*Chairman.*) Did you hear Dr. Headlam's evidence yesterday?—I did—the greater part of it.

969. Do you concur in the opinion, which I think he expressed—namely, that there was no good evidence or even allegation of the cholera, on this last occasion, having been imported by means of infected ships coming from infected localities, or by infected persons?—I agree with that. I am not aware that there is an instance of any such thing having happened.

970. You may suppose an importation from abroad by atmospheric influence; but you are not aware of importation by infected ship or person?—I am not aware of such having been the case.

971. (*Mr. Simon.*) Was your attention during the period of the late epidemic directed to the water supply of this town?—Not especially so. I am aware that previously to the

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epidemic the water was very bad, and very much complained of in the months of July and August—more especially in the western part of the town.

972. When you say that the water supply was very bad, do you mean in quality or quantity?—It was complained of as being bad in quality.

973. Do you receive your water supply from the Whittle Dean Company?—Yes.

974. What was your personal experience of the quality of the water?—During the months, I think, of July and August, the water was very much discoloured—very yellow, and very dirty—so much so that none of my family or servants could drink it.

975. What about the taste of it?—I cannot say that I ever tasted it. I may add that our supply of drinking water is derived from one of the pants of the town, in Blackett Street, which is very good water.

976. Were you deterred from using the company's water by its appearance? or do you not usually employ it?—We do not usually employ it.

977. Did you think it necessary, on account of the condition of the water, to dissuade any of your patients from drinking it?—During the cholera I did so—my own family.

978. (*Chairman.*) Did you dissuade any other of your patients?—I cannot say that I did.

979. (*Mr. Simon.*) To speak of bad water is, of course, but a vague way of speaking. Water is bad if it is turbid, and yet the mere fact of its being turbid—if it were turbid, for instance, with sand—would not be very deleterious to health. Have you any impression as to the character and specific nature of the badness of the water at that period?—I did not make an examination of the water at that time.

980. Did you form any opinion as to the cause of the discolouration?—I have heard that the water was pumped up from the Tyne, and of course the water that flowed in the Tyne was discoloured.

981. Did the water appear foul to you?—Yes.

982. I mean not simply turbid, but as though it contained rotten stuff of any kind?—I cannot say that the water ever had a bad smell to my knowledge, though I have heard it stated that such was the case.

983. And you did not proceed further in the inquiry?—I did not.

984. Did you hear from any of your patients complaints of the flavour of the water?—Not from any patients, but I remember one morning, in passing along Elswick Lane, seeing a woman shew the collector of the Water Company a glass of it; she complained very bitterly, and declined paying the rate which was demanded of her, on account of the badness of the water.

985. (*Chairman.*) I think you stated that at one time you were pretty familiar with the district of Sandgate?—Yes.

986. Had you occasion at that time to observe the form of construction of the houses there?—Yes.

987. We have had evidence to the effect that the best thing to be done with Sandgate would be to bombard it, or apply a lucifer match to it, and build it up again. Now we want your opinion in reference to that point. Do you think that the state of house construction in Sandgate would admit of that district practically being put into a good sanitary condition?—Not, I should say, without pulling one-half of it down.

988. You would not bombard the whole, but would pull one-half of it down?—Perhaps that might be the best mode of proceeding in the end.

989. Supposing you pulled every other of those double back-to-back rows of houses down, would not the back-to-back form of construction of the alternate double rows still be very objectionable?—Certainly.

990. Supposing you had between the fronts of two such sets of back-to-back rows of houses not merely the chinks which at present exist, but also the open space now occupied by an intermediate set of back-to-back rows, would not that still remain a very objectionable form of house construction?—I think it would.

991. You are also probably aware of the practice in this town with reference to the building of houses into banks?—Yes.

992. Do you concur in the opinion as to that being highly, and I may say radically objectionable, as a form of house construction?—I do.

993. (*Mr. Simon.*) In your experience of the houses of the poorer classes, particularly of the tenemented houses, used you to find much inconvenience and much filth occasioned by the absence of privy accommodation?—Yes; their "kits" were kept either in the room or at the stair head, and they were very foul and very offensive, generally speaking.

994. So that either in the room or at the stair head there was an atmosphere of their own excrements?—Generally speaking there was; it depended upon the frequency with which the excrements were emptied. In some instances in Sandgate you never felt it; they went outside and did not deposit their excrements in the house.

995. They deposited them where?—In the gutters or in the privy.

996. On the final issue of these "kits," what became of their contents?—I believe they were generally thrown into the chare, or upon the open grating of the drain.

997. (*Chairman.*) Would you say that a considerable proportion of the excrement of these districts found its way into the thoroughfares of the districts, and had to be removed by scavenage, if it was removed at all?—Certainly, unless by a heavy shower of rain it might be removed in that way; washed away into the river.

998. (*Mr. Simon.*) Was the scavenage very regularly performed in these polluted neighbourhoods?—Not at all so.

999. (*Chairman.*) Would any amount of scavenage have availed to keep a district so radically deficient in privy accommodation clean or wholesome?—Not considering the character of the inhabitants who generally live in that district; they are too careless of their own comfort.

1000. (*Mr. Simon.*) Would you expect among a poor population—among a population very imperfectly educated in the meaning of sanitary regulations—having no privy accommodation whatsoever, and who were habitually obliged to discharge their excrements into "kits," into chamber utensils of one kind and another, that they should take the trouble of carrying this cumbrous and foul vessel to any considerable distance to get rid of it?—Certainly not; that was the meaning of my answer.

1001. You would expect that it would be emptied out directly at or close to the doorway of the house?—Certainly.

1002. And that was the case?—Yes.

1003. And the scavenage in these neighbourhoods was not regular?—It was not regularly performed.

1004. There were accumulations of filth in the passages?—There was generally a layer of filth.

1005. (*Chairman.*) Supposing a layer of filth should be deposited daily on the surface of the thoroughfares of a considerable district, and, after lying there for one or more hours, should be removed by very careful and diligent scavenage at least once a day, at some time or other, can you doubt that such a state of things would lead to a gradual saturation of the soil below with fœcal matter?—To a certain extent, of course, it would.

1006. Do you doubt, then, that under the state of things which has existed in Sandgate and elsewhere for the last twenty years, the soil of a considerable number of districts has been becoming gradually more and more sewage-sodden?—I cannot doubt it.

1007. Assuming that that is the case, and that the soil of certain districts has gradually become more and more saturated with fœcal filth, would you entertain the opinion that that would account for the greater intensity of the recent outbreak of cholera, and for the spread of the cholera from the poor inhabitants of those districts (to which, in 1831, it was confined) to the middling classes, inhabiting better districts in the vicinity, to which, in 1853, it extended?—To a certain extent, I think it would; but it appears to me that the epidemic of 1853 was more severe in its intensity than any previous epidemic which we have ever had.

1008. When you say more severe, do you mean in the extent of the cases or in the severity of the cases?—Both.

1009. I remember to have seen it stated in a report by Dr. Clanny, quoted by Dr. Reid, that on the 25th of December 1831, the first case of cholera was reported in Gateshead, and that on the 27th—that is to say, within two days—172 persons had been attacked, and 63 had died. Do you think that the recent outbreak of cholera in Newcastle presented any instance of greater intensity than that?—Not than in that single instance.

1010. Do you entertain the opinion strongly that the recent outbreak was, in its own nature, more virulent than preceding ones?—From the cases that I saw in 1831, I should say the last outbreak was certainly more virulent. These are matters of opinion.

1011. (*Mr. Simon.*) Are you able to give us any information on this point—whether houses that have been built within the municipal jurisdiction, in the course of the last fifteen years, are better arranged for sanitary purposes, or better provided with appliances for health, than those of a former date—I speak of the dwellings for the poorer classes?—I can scarcely tell the extent of the municipal jurisdiction

1012. Is Shield-field within the limits of the jurisdiction? Perhaps Mr. Clayton can inform us?

(*Mr. Town Clerk.*) It is.

1013. (*Mr. Simon.*) What is the condition of the houses recently built there?—The houses are smaller, and appear on the outside to be better adapted for the dwellings of the poor than those which have been existing for many years in Sandgate. I cannot say that I can speak of the internal arrangements.

1014. Do you know whether they are drained?—I have been told that there is one drain in Shield-field; I am not aware that there are more.

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1015. Do you know Garth-heads?—Yes.

1015A. What is the character of the property there?—The houses are smaller; they are not so high; there are not such blocks of buildings as in Sandgate, and the general character of the inhabitants, I think, is better than that of Sandgate.

1016. Is there paving round about these houses?—In the back streets I believe there is none.

1017. Do you know Park-place, Prudhoe-street?—Perfectly well.

1018. Is it in good condition?—I should say that Park-place itself is not in bad condition; there are some entries in it—there is the entry, Smith's-court, Park-place, in which, in 1846, almost every house contained scarlet fever.

1019. And are those new buildings—at least within the last fifteen or twenty years?—I should think within the last forty years. I am not aware of the date of those buildings.

1020. (*Mr. Town Clerk.*) Far more than twenty years?—Yes, I may say far more than twenty years in Park-place.

1021. (*Mr. Simon.*) Brandling-place?—I do not know much of Brandling-place.

1022. Mitchison's-buildings?—I do not know that place.

1023. Do you know Dublin-terrace?—Not by name.

1024. About the Westgate district, about Buckingham-street and the neighbourhood of it, there is a good deal of one sort of new buildings there, is there not; in Oyster Shell-lane and Dixon's-buildings?—Yes, in Dixon's-buildings there is.

1025. Is that a good conditioned property?—Dixon's-buildings is peculiarly ill-conditioned.

1026. In what respect?—In respect of the population dwelling there, in the first instance, the want of drainage and the state of the roads.

1027. The want of paving?—The want of paving and the swampy condition of the roads, making it very difficult for a carriage of any description to pass through.

1028. (*Chairman.*) In your experience of the district of Sandgate, or of any other district with which you are acquainted, did you see signs or evidences of adequate sewerage existing?—I saw in those districts, for instance, in Sandgate, large accumulations of filth lying about on the surface. I believe that there were sewers there, but whether the houses were drained into them or not, I cannot say. I believe not.

1029. With regard to ash-pits, in a district like Sandgate, where the privy accommodation is deficient, how did you find the accommodation in respect of ash-pits?—The refuse and ashes were carried out in tubs or kits, and taken away by carts.

1030. Did you find any ash-pits in the houses?—I have occasionally done so.

1031. In what state did you usually find those ash-pits?—In some instances I have seen large accumulations of ashes; I allude more particularly to an entry, which has since been pulled down and rebuilt.

1032. Do you remember more than that one case, in which the ash-pits of a district at large were habitually in an unemptied or uncleansed state?—I cannot say that I do.

1033. Did you find ashes and filth, and so on, which ought to have been thrown into ash-pits, thrown about where ash-pits were present?—I have seen that.

1034. Was that done before the ash-pit was full?—I am sure I could not speak to that.

1035. Have you ever found walls damp, and in a bad condition in that respect?—Yes.

1036. Was that dampness with pure water, or rain water, or did you ever see anything worse?—I cannot say that I ever saw anything worse.

1037. Have you habitually found any number of houses in want of what you would call proper cleansing, and whitewashing, and purifying?—Yes.

1038. Supposing it should appear that in a local Act, which has been in force here since 1846, this enactment were to be found: that when it should appear to the council conducive to the public health, and when it might tend to prevent or check infectious or contagious disease, it should be lawful for the council from time to time, if they should think it expedient, to order the occupier of any dwelling-house, within the said borough, to whitewash, cleanse, and purify the same in such manner, and within such time as the council might deem reasonable, or if he neglected it, to do it themselves at his expense; would you, from your experience of the dwelling houses generally in such districts, have been led to the conclusion that that power had been enforced in the six or seven years which have elapsed since the passing of that Act?—No.

1039. You would not think that the dwelling houses had been cleansed, and so on?—Certainly not.

1040. In cases where it would have been conducive to the public health that they should have been cleansed?—Just so.

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1041. Considering generally the state of the habitations to which the lower classes of this town are obliged to resort, would it, in your opinion, have been desirable, if power had existed for the local authorities so to do, to provide better lodging-houses for them?—Better lodging-houses would be very desirable indeed.

1042. Supposing it should appear that, by an Act which has been in operation since the 24th of July 1851, the town council of any borough were authorized to borrow money, to buy lands, to erect lodging-houses, to contract for the supply of those lodging-houses with water and gas, to make byelaws for regulating them, to make charges for the tenancy or occupation of them, and, in fact, to erect and maintain model lodging-houses for the benefit of the poorer classes, do you think that, especially in the circumstances of Newcastle, it would have been desirable for the local authorities here to avail themselves of the permissive and discretionary powers thereby conferred upon them?—I think it would.

1043. (*Mr. Simon.*) Do you think that such circumstances as you have mentioned in your description of Sandgate, and such conditions as exist in the dwellings of the poor in other parts of the town, would seem to render it peculiarly desirable that model lodging-houses should be established for Newcastle?—I should say it was very desirable. I am not aware that Newcastle presents any peculiarity in that respect, more than other towns, inasmuch as I am not aware of the state of other towns.

1044. But in respect of its containing such a district as Sandgate, with a population of nearly 5,000 persons, almost entirely destitute of privy accommodation and ash-pits, should you think it would become peculiarly incumbent upon those who have the charge of such matters to see that those things were provided?—If the Act of Parliament gave them power to do so, yes.

1045. (*Chairman.*) Supposing under any local or public Act, or both, the town council of this town had had powers conferred upon them for the well ordering of common lodging-houses, would you be of opinion that the non-enforcement of those Acts, during the years which elapsed between their passing into Acts respectively, and the recent outbreak of the cholera here, might have had any influence on the aggravation of that outbreak?—I consider that the over-crowding of people together is one of the principal causes which predispose to epidemic diseases in general, and to cholera among the rest.

1046. Can you proceed to any further inference in answer to my question?—That it would have been desirable to have had the Lodging-houses Act carried into operation.

1047. Supposing the Common Lodging-houses Act had been carried into operation zealously, from the time of its passing in 1851, or the 109th section of the local Act of 1846, from the time it passed into law, do you think that this might have had any effect in mitigating the outbreak?—I think it would have had an effect in lessening the amount of predisposing causes to the epidemic.

1048. Did you hear the questions which we addressed to Dr. White or Mr. Grainger, with reference to the recent immunity of the garrison?—Yes.

1049. Do you concur in the opinion that the very numerous cases of diarrhœa, which there occurred, would probably in many instances have proceeded into the more advanced stage of cholera, if certain precautionary measures had not been adopted?—Certainly.

1050. Would you go so far as to say that the fact of no death having occurred among 519 people, although 451 cases of diarrhœa presented themselves in that number, might be owing to the precautionary measures of cleanliness, diet, and prompt treatment which they received at the hands of the garrison officers?—I should say that it might.

1051. Lastly, you cannot have failed to hear something with reference to the conduct of the officers of the Board of Health; we should be glad to hear from you the expression of your opinion upon that subject?—I am of opinion that the officer acted in a most praiseworthy manner; that he did all, as far as I could judge, that he was able to do under the circumstances.

1052. (*Mr. Simon.*) You say "he," do you speak of Mr. Grainger or Dr. Gavin?—The question refers, I presume, to Mr. Grainger.

1053. (*Chairman.*) Would you countenance, so far as your knowledge extends, any of the charges as to tardiness, inefficiency, unwillingness to adopt reasonable suggestions, or any of the many inculpatory allegations which have been made before us yesterday and to-day?—Certainly not.

1054. Have you any further remarks which you would wish to offer?—I cannot say that I have. I shall be happy to answer any questions.

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1055. (*Chairman.*) You are one of the physicians to the infirmary?—Yes.

1056. How many years have you been so?—I was elected in the spring of last year.

1057. You were previously a lecturer on anatomy and physiology in the college of medicine in connection with the Durham University?—Yes, and still am.

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1058. How many years have you practised in this town?—Since 1839.

1059. Did you witness the outbreak of cholera in 1832, in Newcastle?—Yes; as a student.

1060. Did you also witness that of 1849?—Yes.

1061. We yesterday took a good deal of evidence, which I think you heard, with reference to statements made and opinions expressed in the reports of the dispensary and fever hospital; taking Dr. Headlam's opinion as to the correctness of those statements and opinions. Is it your opinion, also, that we may take those statements and opinions as correct?—I believe so; I believe they are correct. I know that Dr. Humble was house surgeon for some years, during the time when those reports were made; and I know him to be a perfectly trustworthy physician.

1062. Considering the various epidemics of typhus, of scarlet fever, of Irish fever, of influenza, of small pox, and of cholera, which by those reports appear to have been prevalent here since the year 1838 downward, do you think that the town of Newcastle has been visited with epidemics more than ordinary towns?—Not that I am aware of; except as regards the last visitation of cholera.

1063. Do you agree in the opinion delivered by Dr. Headlam, that cholera has been present here, sporadically, ever since 1831-32?—I believe that cases have occasionally occurred; very few probably and at distant intervals. I know that some of the cases, called cholera cases, have been disputed as to whether they were cholera cases or not; but I have not seen any of them myself, and therefore I cannot speak personally to them.

1064. Do you think that typhus and ordinary forms of fever, when not present in an epidemic form, have been more prevalent here than might fairly be expected, considering the size of the town and the extent of the population?—I do not think Newcastle has been worse in that respect than other large towns of the same or greater size.

1065. Have you any definite acquaintance with the statistics on that head?—No, I cannot say that I have.

1066. Looking on this statement by the Registrar General, giving the rates of mortality per thousand in the several years since 1839, would not you consider those rates high?—Yes, I should say they are high; but I think in many other large towns the rates will be found quite as high.

1067. Do you know any such town?—No, I cannot speak from facts. I know that Newcastle has been supposed to stand rather low on the scale of health as regards the towns of the kingdom; but there are others, I understand, worse, and some which are about the same as Newcastle. I am not aware that Newcastle stands the lowest in the list.

1068. With reference then to the views expressed in the reports of the medical institutions to which I have alluded, and to the opinions delivered by Dr. Headlam and others in corroboration of them, namely as to the want of cleanliness and good ventilation, and what are ordinarily understood as sanitary conditions, being the causes of those epidemics, do you concur in those views and opinions?—I do not think that those things are exactly the causes of the epidemics.

1069. The causes of the aggravation of the epidemics?—Yes, I think that all those things tend to the increase of epidemics; but I do not think that they are the cause of them.

1070. You think that the virulence of the epidemics, on the occasions to which we are alluding, has been in some degree dependent upon the want of such sanitary provisions?—Yes; I think that the want of sanitary provisions was likely to increase the virulence of those epidemics.

1071. Have you any knowledge yourself as to the degree in which those evils existed; have you inspected the town pretty generally?—Yes, I know the town very well, I have visited the greater part of it.

1072. At what time did you begin to pay attention to its local condition?—As a medical man, I have attended to it more or less ever since I started in practice, in the winter of 1838-39.

1073. What is your impression as to the degree of improvement that the town has undergone in those respects since the year 1838?—I think the improvements have been very considerable; but I believe that a good deal still remains to be done; I know that some very long trunk drains have been made under several of the principal thoroughfares, and no doubt at very considerable expense.

1074. Can you bear in mind now the sanitary condition of the town, say in the year 1848-49; at the time of the then outbreak of cholera?—Yes, I believe there were some new drains made before that time and about that time. I also know that considerable precautions were used by the authorities in cleansing the town at that time.

1075. What improvements in the sanitary condition of the town have been made since the year 1849?—Several large trunk drains have been made through the principal streets.

1076. Has the sanitary condition of the town materially improved since the year 1849?—I should say it is considerably improved.

1077. You gave some evidence before Mr. Grainger last September, did you not?—Yes.

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1078. In that evidence I find these words—"The town as to its sanitary condition is "not much (if any) better than in 1849," and I wish to get your deliberate opinion upon that point. Is the town as to its sanitary condition any better, and if so how much better than in 1849, and in what respects?—It certainly has improved in some respects, inasmuch as these principal drains have been made; but as I said before, a great deal remains to be done.

1079. In your evidence before Mr. Grainger you say, "Some trunk sewers have been "made, but very few houses are yet drained into them;" is that your impression still?—Yes.

1080. You do not of course speak as a surveyor or engineer?—No; I know that some small drains have been laid in, but few I believe in proportion to the number and size of the houses.

1081. As to the poorer districts in particular, what has been the improvement in their state?—I visited several of them lately, having been sent by the corporation. Dr. Charlton and I were sent, and we found that many parts were very dirty. Our mission more particularly was to ascertain whether certain houses were fit for human habitation or not. We found a good many that were quite unfit for human habitation, and they were condemned and shut up.

1082. You were a member of the Newcastle and Gateshead Sanitary Association at its formation in 1847, were you not?—Yes.

1083. Did you take an active part in its proceedings?—I did not.

1084. Did you on that occasion visit any of the districts either in connection with any of the union medical officers or otherwise?—I do not recollect that I did, at least not for the express purpose of ascertaining.

1085. Did you at that time form a definite opinion as to the sanitary condition of the poorer districts?—Not having visited with that object I did not. I know the general character of them, being acquainted with it in some measure from passing through the places occasionally.

1086. With reference to the improvements which have been made in these poorer districts, say since about that time, do you think that they are considerable, or what is your opinion on that point?—I do not know what improvements have taken place in the poorer districts, except that latterly they have been more attended to than they were before, before and during the cholera and since.

1087. My object was to ascertain what improvements in your opinion had been made between about 1848 or 1849 and the 31st of August 1853, that is to say previously to the last outbreak of cholera. Had any material improvement taken place in that interval?—I believe, as far as I know, that some of the yards in Sandgate have been paved which were unpaved before.

1088. That was in the spring of 1852, I believe. Do you know of any other improvements that have been made in the condition of the poorer districts between 1849 and August 1853?—I cannot speak to any particular locality in that respect. I have always understood that the scavenging has been more extensive, but I do not know the exact amount of difference.

1089. Had you such a knowledge of these localities as to enable you to say, for instance, whether the overcrowding there was lessened and the ventilation improved generally between those times?—When the new Lodging-house Act came into operation, I believe the lodging-houses were regulated, and the overcrowding there prevented.

1090. Are you aware when that Act did come into operation?—Not exactly.

1091. Do you confirm the opinion that there was, just previously to the late outbreak of cholera, great overcrowding, especially in the lodging-houses; and are you of opinion that that is a point most important to the public health?—It is a point of very great importance to the public health. I am not aware from personal observation that these places were so overcrowded. I have heard that they were.

1092. Had you occasion, as a medical practitioner, to pay attention shortly previously to the recent outbreak to the state of the water in Newcastle?—I have not analysed the water at all. I have observed it as people commonly do who take an interest in these things. Sometimes it was tolerably good, at other times again very objectionable in appearance and taste.

1093. About what period do you think you first noticed the state of the water as objectionable?—I cannot clearly give you the dates; from time to time the water in the house that I occupy has been clear; at other times it has been muddy; it has had sediment in it, and so on.

1094. When you say from time to time, do you mean that in different years you have noticed this or that at different periods of last year you noticed it?—Both, I think, to the best of my recollection.

1095. Have you noticed the state of the water as objectionable in years previous to 1853?—Occasionally.

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1096. How often?—I really do not recollect.

1097. Would it be once in a year, or once in two years, or once a month?—It was not so much as to lead me to complain to the water company about it; we have almost always been drinking the water.

1098. Have you ever at any time noticed the water in such a state as to be in your opinion objectionable for drinking purposes?—Yes; at the time the cholera was here, it was very much so.

1099. For how long previously to the outbreak do you think that the state of the water had been so objectionable as you mention?—I believe it was at the worst at the coming on of the cholera, and during a part of the time when that was most virulent.

1100. May we take the 31st of August, which, I believe, is regarded as the date of the first case of cholera, as the time to which you allude?—It was somewhere about that time.

1101. Would you be of opinion that this objectionable state of the water, shortly previously to the outbreak, had any effect in aggravating the virulence of that outbreak?—Possibly; although I certainly would say that I could not distinctly trace it. I believe it possible; if the water were taken from the river, the river containing excrementitious matter, I think it is possible; although I do not know how any one could clearly trace such a series of results from one to the other.

1102. Did you consider the state of the water such as to call upon you, as a medical man, to dissuade your patients from using it?—I was not aware at the time that we were getting river water—I heard afterwards that we had been getting it—and therefore I did not. I recommended people to take a little brandy with their water.

1103. But you did not, as I understand, dissuade them from the use of the water?—No; for they could not get other water, and water they must have.

1104. You did not recommend them to use filters previously to drinking the water?—No, I cannot say that I did.

1105. You did not consider it so objectionable as to call upon you to make that recommendation?—No; it was dirty, and so on; but I was not aware that there was anything deleterious in it.

1106. Was it your opinion that the matter in it which rendered it objectionable was simply what you would call dirt—earthy matter; or did you think that there was anything more pernicious?—I thought it was a very disagreeable thing, and possibly it might be very objectionable; but I traced no ill effects from it in my own family.

1107. (*Mr. Simon.*) You mentioned that it was objectionable in its taste?—Yes.

1108. Did that taste convey to your mind any particular impression as to the nature of the contamination?—No, none whatever, except that it seemed to be rather of an earthy description. It is difficult to determine these things distinctly, but it gave me no impression of anything worse in it.

1109. (*Chairman.*) You would consider the presence of decomposing organic matter, whether animal or vegetable, highly objectionable?—Certainly.

1110. But the general impression which it produced upon your mind did not suggest to you the presence of any such highly objectionable matters?—No.

1111. Have you had your attention drawn to the state of the gas here?—Yes.

1112. You heard the examination of Dr. Headlam upon that point yesterday; what is your opinion upon the subject?—I think the gas is very impure.

1113. Have you any opinion as to the effect of that gas upon the public health, especially in regard of shopkeepers who use it largely in their shops, in which they, so to say, live?—Yes; I think it must be injurious to them, in shops not very well ventilated. I know the effect also upon the binding of books in the library which was mentioned yesterday. I know that the binding there has been destroyed in many instances, and I have had lamps, such as they have in the library, put up in my house for keeping it clean; in one room at all events.

1114. For carrying away the products of combustion?—Yes.

1115. Do you conceive that the impure state of the gas has had any perceptible or material effect in aggravating the virulence of the recent outbreak of cholera?—I think that everything which contaminates the air is likely to predispose in some measure to it; and therefore, I think that the products of combustion from gas, particularly if it is impure, are likely to injure health to some extent; in the same way as all kinds of vapours are likely to do so, and smoke, and all sources of impurity, emanations from church-yards, overcrowded places, ill ventilated places, and places which are not properly cleaned and drained and so on; these are all sources of unhealthiness, and all tend to make people more sensitive to zymotic diseases.

1116. Do you think it could be alleged with truth that it had any perceptible influence upon the health?—I have not been able to trace any direct effect from the gas, so as to see that it was productive of cholera.

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1117. Does your practice take you at all among the very poor districts?—I saw a good deal of the cholera in certain poorer parts of the town during the past epidemic, and also during the first epidemic.

1118. What is your opinion of the state of those poorer districts in respect of sanitary conditions, at the time of the last outbreak?—I think on the whole they were very defective. They required more drainage and scavenging; if possible, also to have the habits of the people living there corrected; without such correction, the sanitary arrangements of the town for the surface cannot really be carried into effect. I have observed that many alleys and lanes, which have been perfectly cleaned in the morning, have perhaps in the evening been very dirty again, and till the morning of the next day.

1119. Do you consider that any habits of cleanliness, on the part of the population of the poorer districts, would have availed to keep those districts in a decent condition?—Not without drainage and proper scavenging.

1120. Are you aware, or is it in your opinion a fact, that large extents of these poorer districts may be said to be almost without drains, without privies, without ash-pits, and without any of those accommodations which should relieve the inhabitants from the necessity of flinging filth of all kinds about in every direction?—I believe that many of those districts are very defective in these respects. I know that the want of privies is very greatly felt. As to the actual extent of drains I cannot speak, but I know that some of the streets are without them—a good many, probably, are without them.

1121. You alluded to the habits of the poorer classes. It would be material in our inquiry to ascertain how much of the filthiness of these districts might be owing to perverse and uncleanly habits on the part of the population, and how much was absolutely inseparable from the condition of the districts in which they live. Did we rightly understand you to say that no habits of cleanliness on the part of the population would have enabled them to keep those districts in a decent condition, for want of proper drainage and proper scavenging?—In many parts of these districts, I believe that drains are very much required; I believe they are absent in many places altogether.

1122. (*Mr. Town Clerk.*) To what particular parts do you allude?—I have understood that in Sandgate, or in parts of Sandgate at all events, there are no drains. In many of the alleys leading from Sandgate, I have understood that. I have heard so about Peel-street, and some parts of that neighbourhood.

1123. That neighbourhood is in the new part of the borough?—Yes.

1124. (*Chairman.*) I think you said that, during or shortly previously to the recent outbreak, you examined several houses and tenements, with a view to ascertaining whether they were fit or unfit for human habitation?—After the outbreak.

1125. What was the general state of the tenements in those poorer districts which you examined?—We were taken by the inspectors of nuisances to the worst parts; to those houses as to which they were in doubt whether they were habitable or not: and those which we visited certainly were very bad indeed.

1126. What was the extent of these districts, in your opinion?—Really I cannot tell you in figures. We went partly through Pandon and Sandgate, Peel Street, some parts of the Head of the Side, and Newgate Street, and Ouseburn. Those were the principal parts visited.

1127. In the Local Act of 1846 it was enacted that the town council should be empowered to make bye laws for regulating the registering of lodging-houses, maintaining cleanliness therein, and keeping them in a wholesome condition; and also for laying down rules for cleansing filthy and unwholesome dwellings. Do you think that in the seven years which elapsed between the passing of that Act and the outbreak of cholera those powers had been duly and effectively exercised?—No; I think they had not been duly carried out.

1128. (*Mr. Simon.*) Did the houses which you visited give you the impression of their having been under the operation of a law "for the cleansing of filthy and unwholesome "dwellings"?—No.

1129. (*Chairman.*) Do you happen to be aware of the fact that the garrison in this town enjoyed, at all events, a comparative immunity from cholera during the recent visitation?—Yes.

1130. Are you aware that diarrhœa prevailed there very extensively?—Yes, I believe it did. I do not know the number of cases, but I believe there were a good many.

1131. Have you any doubt that, under different circumstances, many of those cases of diarrhœa, or a certain number of them at all events, might have passed on into the stage of cholera?—They might.

1132. Do you think that the fact of no one case out of the 451 having passed into the advanced stage of cholera, was owing to the exertions of the garrison officers with reference to sanitary conditions?—I think it is probably mainly owing to the fact of the cases being treated at the first moment of their appearance.

1133. You would ascribe it mainly to prompt treatment?—Together with the sanitary arrangements; the treatment is the material point—the first thing.

1134. (*Mr. Simon.*) Of the premonitory diarrhœa?—Yes, because I know that in some of the worst parts of the town, premonitory symptoms, if they were at once attended to

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were put a stop to. I have always considered house-to-house visitation one of the most valuable means to be put into operation, with a view to the administering of medicines at once.

1135. Can you speak to that having occurred within your own observation on a large scale, viz., that in bad districts of the town, the diarrhœa that occurred was arrested by proper prompt treatment, where otherwise you would have expected it to run on into cholera?—Yes.

1136. (*Chairman.*) Have you any opinion to express with regard to the measures taken under the directions or with the concurrence of the Board of Health officers for the palliation of the recent outbreak?—I believe the arrangements which they made were perhaps the best that could be made under the circumstances.

1137. Have you any further remarks to make?—I will merely make this remark, that I think that the causes of these epidemics are not to be sought for in dirt alone. My opinion is that they are contagious, but it is difficult to say to what extent, or to pronounce exactly the circumstances under which contagion is possible. I believe it is possible, and to that I attribute very much the spread of the disease, and I have known several examples of its apparently being so propagated from one place to another. It is necessary that all sanitary arrangements should be carried out as far as is possible, but I do not think that if they were fully carried out, we should put a stop to epidemics.

1138. (*Mr. Simon.*) Have you ever known typhus to prevail extensively in a place with unexceptionable sanitary arrangemements?—I have no instance present to my mind just now.

1139. Can you recall any instance of cholera prevailing extensively in any town with unexceptionable sanitary arrangements?—I do not know any town that has unexceptionable sanitary arrangements.

1140. (*Mr. Town Clerk.*) Do you know Exeter?—I do not. I have known it occur in villages where the sanitary arrangements were as far as I know very good indeed—unobjectionable.

1141. (*Mr. Simon.*) Speaking generally of the presence of cholera in this town, would it be your impression that its prevalence in the different parts of the town has been in proportion to the sanitary defects of those parts?—I do not know that I can answer that question directly. I believe that it has been spread over the whole of the town, that even the most healthy parts of the town have been affected by it. Cases have occurred in the most elevated parts of the town, and parts that I believe are drained parts, from which there is a fall in two directions at all events, if not in three directions, and where the houses as far as I have been able to ascertain are perfectly clean and new.

1142. But speaking of groups of considerable numbers of cases, are you aware of any such clustering of cases having occurred in houses of unexceptionable cleanliness?—I do not know of any such groups of cases. Cases have been scattered here and there indifferently through every part of the town, and I have understood that Sandgate, which has been so very deficient in sanitary arrangements, has not been the worst part in the town; that greater numbers of deaths occurred in other districts. I will not vouch for the truth of this.

1143. You have no doubt that Sandgate suffered very considerably from cholera?—Just so.

1144. And that the sanitary arrangements in Sandgate are of a most defective charcter?—Yes.

1145. (*Chairman.*) You said I think that you suggested the shutting up of a certain number of houses as unfit for human habitation?—Yes.

1146. That implied, did it not, a strong opinion on your part as to the aggravation at all events of cholera by a defective condition of habitations?—I think that all sanitary arrangements ought to be fully carried out. I believe that if they were they would mitigate the severity of epidemics, but would not destroy them altogether.

1147. Are you of opinion that the extent of the improvements to which you alluded in Sandgate has been such as to warrant the expectation of an appreciable improvement in the rates of mortality there?—I must confess that I do not know the whole of the improvements which have been made there. Those which I know have been made during and since the outbreak, are very likely to diminish it in some degree but not perhaps very greatly. The place is radically bad altogether—it requires remodelling.

1148. (*Mr. Town Clerk.*) Bombarding?—Perhaps bombarding; but gentler means perhaps would be equally effective.

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1149. (*Chairman.*) I believe you are one of the surgeons of the infirmary here?—Yes.

1151. And have been for many years connected with that institution?—For many years.

1152. And have practised in the town since about when?—1819.

1153. As an officer of that institution are you cognizant of the contents of the reports put forth by it?—I am.

1154. Would you concur in the statements there made as to matters of fact, and the views there expressed as to matters of opinion?—I have not considered these reports with reference to the question under your consideration, in such a way as to enable me to give a general opinion. I shall be very glad to answer any question.

1155. In general terms are you aware that, since the epidemic of cholera in 1831-2, there have in this town been different epidemics, as of typhus in 1843, of scarlet fever from 1845 to 1847, of Irish fever from 1846 to the spring of 1848, of influenza in the winter of 1847-8, of scarlet fever in 1851 and 1852, of continued fever and so on? Are those facts?—Those are facts to the best of my recollection.

1156. Have you any reason to suppose that the reports, issued by medical institutions of such a character as the fever hospital and the dispensary of this town, would contain either statements of fact or expressions of opinion materially incorrect?—I should certainly expect that their statements of fact would be correct, and that their expressions of opinion would approach correctness.

1157. (*Mr. Bateman.*) Such as at the time you would be induced to coincide in?—Probably I might.

1158. (*Chairman.*) In one of those reports we find one remarkable expression, to which we wish to direct your attention. After alluding to certain lodging-houses occupied by trampers, and tenements occupied by the lower Irish in this town, the report says, "Here fever "has its constant home;" and in a report by the medical committee of the Newcastle and Gateshead Sanitary Association, made to Mr. Rawlinson in 1849, and signed by ten or twelve of the most eminent medical practitioners of this town, we find, in reference to certain similar localities the similar expression, that "fever is never absent." Now I would ask you whether you have such a knowledge of these localities as would enable you to give a confident opinion as to the accuracy of those expressions?—I do not often see those localities; but I have reason to believe that fever is very generally more or less prevalent in them. I may add that I know, as a magistrate of the bench of Newcastle, that the borough magistrates have very lately shut up a great many houses, forbidding that they should be occupied again until certain changes were made; and many heavy fines have been levied upon persons who have allowed too great a number of people to sleep in a room.

1159. (*Mr. Simon.*) Has that interference in closing houses occurred during a long period, or only within these few months?—The actual interference has occurred of late. It was debated in the town council two years ago, and the desire on the part of the corporation then was, to take powers by a new town improvement bill, to enable them to adopt measures with respect to these lodging-houses. It was objected by some leading members of the council that this might be more or less an encroachment on the liberties of the subject.

1160. (*Chairman.*) By the Local Act of 1846, in the 109th section, it is enacted, that it shall be lawful for the council from time to time to make regulations for the registering of lodging-houses, maintaining cleanliness therein, and keeping them in a wholesome condition; to lay down rules for cleansing filthy and unwholesome dwellings; to fix the penalties to be incurred upon the breach of such rules and bye-laws; and so on. Now at the period, two years since, when it was debated whether the corporation should take fresh powers for the purpose of being able to adopt measures with respect to improving the lodging-houses, and other tenements, in fever-haunted localities, were these previously existing powers considered insufficient?—The powers were considered insufficient; and a great objection was taken to the employment of the officers of the police respecting those houses.

1161. In what respect were these powers supposed to be insufficient? I do not see it here enacted that the town council should necessarily employ the officers of the police in the exercise of those powers?—The inefficiency of the clause might arise from the doubt whether the police could with propriety be employed in that service. I can only account for it in that way.

1162. Are you aware of any regulations ever having been made under that clause of the Act of 1846 before the 31st of August, 1853?—I have no recollection of any active proceedings till of late.

1163. Till after the late outbreak of cholera?—I think since the outbreak.

1164. (*Mr. Simon.*) Would such active proceedings have come under your notice as a magistrate, if there had been any such?—I think they must have done so occasionally, I doing duty in the court once in six, or seven, or eight weeks. My colleagues are indulgent to me. I do not, perhaps, spend so much time in the police court as most of them.

1165. (*Chairman.*) You mentioned recently that you were in a general way familiar with this fact, that in certain localities of this town fever habitually prevailed to a considerable extent. Do you there understand by the term fever a class of diseases which is more or less preventible?—I understand by the term fever, there used, some variety of typhus. I conceive that ventilation, good drainage, and temperate and cleanly habits, must always contribute vastly to keep down the prevalence of fever.

1166. Is it within your knowledge, as a medical man, that typhus, and the varieties of typhus to which you allude, used to prevail extensively in union workhouses, in prisons, and so on?—Yes.

1167. Is it within your knowledge that, in a great number of such institutions throughout the country, typhus may be said to have been abolished and eradicated?—I believe that is the case.

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1168. Do you think then that the special localities of Newcastle, to which you allude as the seats of typhus, and other forms of fever, could by any precautions have been rendered free and rid of those diseases?—Comparatively so.

1169. Among those precautions what do you include?—Amongst the very first, I should perhaps place good and complete drainage.

1170. Both of fœcal matter, and of surface water?—Yes.

1171. (*Mr. Simon.*) To remove dampness and to remove excrements?—Both, of course; but perhaps dampness more than the other. I have several times noticed much fatal typhus fever at a great elevation; some morass amid a wood having been for a time to windward of the locality in which the disease prevailed.

1772. (*Chairman.*) Then you do not refer to what may be called simple dampness, but to the effect of dampness in conjunction with large masses of decomposing vegetable matter?—I believe that to be the most injurious; most of all so, I think, when there are exhalations from the gradual drying of wood.

1173. Do you believe that simple dampness, that is to say, the exhalations from pure water, have any materially bad effect on the public health?—Not the exhalations from pure water, but the exhalations from water in which animal or vegetable matter may be undergoing decomposition.

1174. Therefore the material evil, as I understand you, arising from dampness, occurs when that dampness is co-existent with decomposing animal or vegetable matter?—I believe so.

1175. Such as we should expect to have removed by sewerage and scavenage?—Certainly.

1176. Is there any other point in which precautionary measures might be adopted with success, besides sewering and scavenging?—If the local authorities had power to regulate ventilation, and to secure a certain amount of it, I have no doubt that would be beneficial.

1177. If they had had power to keep lodging-houses and dwellings in a clean and wholesome condition, it might have had an effect?—It must have had a great effect.

1178. Do you doubt that they had that power under that clause which I read to you from the Local Act of 1846—to say nothing of the general Common Lodging-houses Act?—I do not doubt it.

1179. And might have acted?—And might have acted.

1180. Do you admit that for seven years, between 1846 and 1853, the corporation had powers by means of which they might materially have improved the health of the inhabitants of considerable districts, and yet that for those seven years they neglected the exercise of those powers?—Partly neglected them.

1181. Were there then circumstances which interfered with their exercise of them?—I remember that the inhabitants of this town were interested and active at one time with reference to sanitary proceedings—that public meetings were held, and that at one of these public meetings a sanitary committee was appointed—I was a member of that committee myself. It was expected that this committee would have some power given them by Government, by which they might be enabled to proceed actively in enforcing sanitary regulations. No such powers were ever conveyed; and if I recollect rightly (I cannot charge my memory with it very clearly, but the records of the corporation will show whether I am right or not), about four years ago I presented a memorial to the town council from the inhabitants, or from that committee, begging the council to appoint a sanitary committee of the members of the council, so that there might be a committee which really was efficient, and which might have efficient powers.

1182. (*Mr. Simon.*) The committee which you first mentioned was a committee of volunteers?—A committee of volunteers, but their appointment was sanctioned by a public meeting of the inhabitants of the town.

1183. (*Chairman.*) Was that about the year 1847-48?—I think it was.

1184. Would you regard the establishment of that sanitary association as a result of the prevalence of Irish fever, and so on?—To the best of my recollection, the attention of the public was directed to the subject by the prevalence of that disease.

1185. Did the exertions and the activity of that association fall away when the cholera of 1848-49 disappeared?—The committee were no longer called together; the members of the committee became utterly indifferent, feeling that they had no power to make themselves useful.

1186. (*Mr. Simon.*) In terminating their labours, did they suppose that they left the matter in the hands of the corporation, and that the corporation would deal with the matter in proportion to its importance?—That is my impression.

1187. (*Chairman.*) You alluded recently to a memorial you presented to the town council. I have a note here, which implies that on the 20th of November 1848, a unanimous resolution of the sanitary committee of the eastern district was adopted, to this effect: "That the corporation be memorialised on the subject of a general drainage "throughout the borough, and that they be requested to supply the board with a map of "the drainage." Is that the memorial?—I think so; out of that resolution the memorial, perhaps, arose.

1188. Are you of opinion that this recent epidemic might be properly characterised as unprecedentedly severe?—I remember one locality where, in the year 1832, one person in five of the entire population was carried off by cholera—a few miles distant from hence.

1189. What place was that?—Newburn.

1190. Do you remember Wrekenton in 1849?—Yes.

1191. There one in six was carried off?—Yes.

1192. Therefore, if by severity you mean the proportion of deaths to population, would you be inclined to say that the last attack was unprecedentedly severe?—I can only admit that it was unprecedentedly severe as regards this town, but not in comparison with these other places; for instance, in Newburn, in 1832, the population of the village being 550, the cases of premonitory symptoms and of developed disease together amounted to 416, and the deaths, if I remember rightly, were 98. The first eighteen cases were all of them fatal, and those made a large proportion of the mortality which followed.

1193. Within your knowledge, may the epidemic of cholera in 1848 and 1849 properly be characterised as having been very light here?—Most singularly so, and I think that this circumstance put off their guard the public and the authorities of the town—something approaching nearly to immunity from the disease.

1194. Did you form any opinion, or have you now any opinion, as to the causes which led to that comparative immunity of Newcastle at that period?—I remember expressing a strong opinion upon this subject, and conducting Mr. Grainger afterwards to the office of the Whittle Dean Water Company, introducing him to the persons who are officially employed there, and gratifying him exceedingly by showing him the arrangements of the whole thing: and I recollect his attributing the comparative immunity of cholera in 1848-49 to the then abundant supply of water to the town. I remember regarding this with great triumph, because I had previously (not for the last five years) something to do with that company.

1195. Do you think that that one cause would sufficiently account for the immunity; or do you think that other causes were in operation at that time?—I think that there were others. You will perceive, by referring to the history of cholera, that whenever this disease invades a country, the point on which it first falls is the point where the mortality is usually the greatest. The disease seems to be more active and malignant where it first appears.

1196. Where did it first appear in 1848-49?—To the best of my recollection, it was around us here.

1197. With reference to those other causes, which you think may have had an influence in exempting Newcastle, in 1849, from the ravages of cholera, could you specify any—any cause beside the abundant supply of pure water?—I cannot, at this moment, call to mind any other.

1198. In a pamphlet published with reference to the water supply it is stated, that the lightness of the cholera was then generally ascribed to a general cleansing of the town, which had recently been adopted in consequence of the serious prevalence of Irish fever, and of the anticipation of that outbreak of cholera, as well as to the abundance of good water. Would you consider that that cleansing and purification of the town had any effect?—I should certainly expect it to have exerted a considerable influence.

1199. (*Mr. Simon.*) Have you any belief that the town has been cleansed since that period?—I believe not: but there has been a peculiar difficulty in securing anything like cleanliness in this town for some years past, and this arises partly from its extremely rapid increase; new buildings are going on in all directions—excavations are made, brick yards are formed—soil and lime, and bricks and stones are passing through the streets constantly—and there has been more difficulty in maintaining an orderly and clean state of the streets and thoroughfares of the town, in consequence of this and of the rapidity with which new buildings are going on, and the town is extending. The increase in the population would show that it has increased very considerably.

1200. (*Chairman.*) In the fever hospital report for the year 1850, page 7, Dr. Headlam, in his report to the committee of that institution, makes this statement—that, in his opinion, the healthiness of the year 1849-50, as regards zymotic disease, was in a considerable degree attributable to the sanitary measures of removing the accumulations of decomposing animal and vegetable matter from the crowded parts of the town, which were adopted in consequence of the prevalence of fever in the preceding year, and in anticipation of the approach of epidemic cholera. Do you coincide in the opinion thus expressed by Dr. Headlam?—I do.

1201. Do you believe that, since the date of that report, the accumulations of decomposing animal and vegetable matter, at that time removed, have again made their appearance?—I do not think it probable. I am not able to assert positively either that it is so, or that it has not been so.

1202. You have no such specific knowledge of those districts, especially the lower districts of the town, as would enable you to say whether their condition in the period between 1849 and 1853 had in any degree reverted to that objectionable state in which they were before these operations of the year 1848?—From my own personal observation in going through these places, I should certainly say that they had not become more filthy or more disorderly since that period.

1203. Have they improved in any respect?—In some situations they certainly have, in consequence of the flagging and paving being better done; and considerable attention, I know and have constantly seen, has been paid to the cleansing of these places. I think the corporation paid 2,500*l.* a-year—perhaps 2,800*l.* a-year—for the work at that time.

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1204. Are you acquainted at all with the district of Sandgate?—I am. I ride through it sometimes.

1205. Is it within your knowledge that that district is, to a very considerable extent, destitute of privy accommodation?—I am afraid that is the case; because I remember the subject being brought under the consideration of the council, and I heard statements made at that time which showed that these accommodations were not so numerous and so conveniently placed as they ought to be.

1206. Supposing a district of the size of Sandgate to be destitute of privy accommodation, to the extent to which Sandgate is destitute, do you conceive it possible that accumulations of filth, and especially of excrements, should not, day by day and hour by hour, be taking place in every court and alley and direction of it?—I should expect that this calamity (for I certainly regard it as one) might be very much modified by the vicinity of the river, the river running within a few yards.

1207. (*Mr. Simon.*) That the "kits" might be carried to the river?—Yes; and the degree of declivity from the houses in Sandgate to the river is considerable. There is a sufficient fall for drainage—surface drainage, at all events—by which such accumulations might be very easily carried off.

1208. (*Chairman.*) Supposing that Sandgate were even on a steep slope, do you think that any great proportion of the excrement which might be deposited on the thoroughfares there would readily be swept by the rain, or by any such other process, into the river?—If not swept into the river, I should expect it to be carried into surface-drains, which I think there are between Sandgate and the river, and from those drains into the river.

1209. In the course of this gradual rain-fall-washing of it, either along the general surface or down the drains, such as they are in Sandgate, what effect do you think that process would have on the state of the soil beneath?—I do not know that it would penetrate into the soil beneath, the drains being paved.

1210. Supposing the course of an open drain there to be, as we with our own eyes have seen it, plastered or dotted over for a considerable width with deposits of excrement, and supposing the pavement of that drain to consist, as it often does consist, of round pebbles, with large interstices between them, out of which no practicable amount of scavenging could cleanse and remove that excrement, do you doubt that a large portion of excrementitious matter would, day by day and hour by hour, be infiltrating and soaking into the soil below?—I have no doubt that would be the case.

1211. Supposing such a process to continue from year to year, do you doubt that the soil would become more and more sewage-sodden?—Such fluid, so saturating the soil, would pass downwards till it reached the clay, or some impervious sub-soil, I conceive; but I expect that much effluvium would not arise from the surface, provided it was occasionally washed, because the surface would be limited.

1212. Is it within your knowledge that a great part of the site of Newcastle consists of a shallow stratum of indifferent yellow clay, or loam, over a remarkably impervious stratum of blue clay, so that the literal surface of the soil is often but difficultly permeable by these fluids?—I have seen that, wherever foundations have been sought for, in almost every part of Newcastle.

1213. So that the soil would present great difficulties to the infiltration or soaking of these pernicious fluids to such a depth as to be beyond the reach of atmospheric influences tending to cause poisonous exhalations?—Yes, I admit that.

1214. Would you, then, be of opinion, that the intensity of the poisonous exhalations liable to be evolved from these sewage-sodden surfaces at every variation of the atmosphere, either in respect of wet or heat, has been increasing from year to year?—My reason for doubting whether on the average they have been increasing, or increasing in proportion to the population and the buildings of the town, is this, that more has been done in sweeping away and clearing localities of their wretched habitations, and in constructing better houses.

1215. We understand you to have come previously to the conclusion that the surface of a great part of this town, say of the thoroughfares in Sandgate and other similar districts, was, from the nature of those districts, inevitably liable to become more and more filth-sodden from time to time. Do you doubt, then, that the intensity of the poisonous exhalations thence evolved by atmospheric influences has been increasing from year to year?—It would have been, I have no doubt, if Sandgate had not been rendered considerably more open than formerly. The buildings have been cleared away in several situations.

1216. (*Mr. Simon.*) Of course our knowledge of the local geography must be very inferior to yours, but are not there large parts of Sandgate which are almost solid masonry, where internal dwellings get light and air only through chinks?—I remember one or two places where openings have been made—one place called the Swirle, on the south side. Another of these is east of the Swirle; and I think that the wide opening made in that direction was for a gas factory.

1217. (*Chairman.*) Has there been such a removal of the houses which you speak of in Sandgate as to enable the sun to get more easily to the thoroughfares of the previously existing streets?—The sun, the wind, and the rain.

1218. (*Mr. Simon.*) Do you know any house in Sandgate which is capable of getting sunshine on both sides?—I do not.

1219. (*Chairman.*) Supposing such changes to be made as would enable the rain to fall more freely, and the heat of the sun to beat more freely, on a surface previously saturated with filth, do you think that that would tend to mitigate the poisonous nature of the exhalations thence arising?—I think it would contribute to make the exhalations less injurious.

1220. What are the influences which affect the evaporation of poisonous gases from a soil such as I have described?—The retention of moisture, particularly in animal or vegetable matter.

1221. Will that retention of moisture be practically injurious, unless heat cause that moisture to rise in the shape of vapour, carrying along with it the poisonous exhalations of that animal or vegetable matter?—I have no doubt that evaporation would go on more rapidly under the influence of a hot sun, but I very much doubt whether the poisonous exhalations would be more malignant from it. I am informed by the best authorities, that in India they sometimes render a district more wholesome by burning a jungle, and they immediately get rid of one of the most formidable fevers—the jungle fever.

1222. No doubt: by burning up the vegetable matter, which evolves the malaria producing that fever. And, supposing you could scorch and burn up all the surface and other filth of Newcastle, might you not also produce the same effect here?—Yes.

1223. Did not the great fire of London burn out the great plague there in that way?—I have no doubt it did.

1224. Would you then concur in the opinion, which ascribes the increased severity of this recent outbreak to the increased intensity of the poisonous exhalations liable to be evolved from the soil of districts, in which the eternal depositing, and re-depositing, and re-re-depositing of excrement on the surface, is a matter of inevitable necessity?—I should not be inclined to concur in that opinion; because I cannot perceive that the sanitary condition of Newcastle is worse now than it was many years ago.

1225. Have you considered all the points of that sanitary condition?—Perhaps not so carefully as I ought to have done.

1226. (*Mr. Simon.*) Not only in Sandgate, but in a considerable district in that part of the town, it appears that the excrements of the mass of the population, and not of individual dirty people only, are spread over the place. Have you any reason to doubt that to be the case with reference to a large portion of the town in that direction?—I should very much doubt its being the case with the more decent part of the population.

1227. Should you doubt that in respect of Sandgate?—In respect of Sandgate.

1228. Pandon?—And in respect of Pandon.

1229. We have very strong evidence upon that subject, and we have the evidence of our own senses, as to the presence of a large quantity of excremental matter there?—I should expect that these people use vessels of some kind or another.

1230. Which are emptied out?—And that the contents of these vessels would be carried off by the carts which go round.

1231. (*Chairman.*) We arrived here shortly after a fall of snow. That fall of snow, at all events, covered up whatever arrears of filth had previously accumulated. On the top of this snow, where it remained in corners, and so on, we saw with our own eyes what seemed to us to be astounding accumulations of excrement, in every possible form. Was that the usual state of things; or did we look in at a very remarkable time?—I apprehend that you saw only that state of things, which had obtained for ages in and about Newcastle.

1232. (*Mr. Simon.*) Are we to believe that, at the present time, in these districts, a casual walker in them would find a very general accumulation of excrement?—Not exactly where the steps of passengers or of horses passed.

1233. I do not wish to put it as a matter affecting the feet of the wayfarer, but in the open way, on the gratings of sewers, in the corner of courts and the like, in the sides of courts, along the line of the house wall, and so on. Are you of opinion that that state of things has for ages prevailed in Sandgate?—I believe it is a general thing.

1234. Can you doubt that such a system of things leads to a gradual poisoning of the soil?—I have no doubt it must have a most noxious influence, but I do not imagine that there is any gradual increase of the mixture.

1235. As to the effects of the accumulation *de die in diem*, that is, of the condition of the pavement in Sandgate, in Pandon, and in a great part of the old town, you agree with us generally?—That such a state of things has a most important influence on the public health.

1236. We have evidence before us of other extensive districts, where privy accommodation is present, but where the accommodation consists, not of the more refined arrangement of a water-closet, by which the excrement shall be washed along pipes to a distance, but of open privies at the back of the houses, or close to them, so that whatever excrements are furnished by the establishment, remain there in close contiguity to the house. You are aware that that is the case?—I am aware of that. In fact, we have shut up some houses lately in consequence of that state of things, and prohibited those houses being used as human habitations.

1237. Is it not the case that, as a general arrangement for the necessities of the people in Newcastle, even of the better classes, open privies largely preponderate, and that water-closets are exceptions?—Water-closets are only found in the best houses.

1238. Evidence is before us that the water company supply 1,166 water-closets; so that we have general evidence on that subject. Bearing in mind then that we have large districts,

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where on the pavement there is a considerable quantity of excrement—that we have considerable districts where privies are present, but where they are only, as it were, watch-boxes put over similar accumulations of excrement—excrement not removed by daily or weekly scavenging—does it not appear to you that the area of Newcastle continuously furnishes a very considerable evaporation of fœcal matters?—Of course it must.

1239. Do you know of any acre of the area on which Newcastle stands, within the municipal boundary, which does not furnish such an evaporation?—Yes; I think there are several acres in the town which are only formed of first-class houses, with water-closets and good sewerage.

1240. Water-closets for the servants?—Yes; even for the servants.

1241. Do you think you could put your finger, on this map, upon an acre of ground that does not contribute at all to the evaporation of ordure?—I am not perfectly certain about one or two of the best localities having accommodation of that sort for servants. I know some of them have. I could not take upon me with confidence to assert it.

1242. But you do not doubt the general statement, with respect to the inhabited area of Newcastle generally,almost universally, furnishing a certain evaporation of ordure?—I have no doubt of it.

1243. And that with new building that area increases, and that with the increased population the material increases?—Of course.

1244. (*Mr. Bateman.*) You have been for some time a member of the town council, and you have evidently taken a good deal of interest in the sanitary improvement of the town. Is there any considerable body of members of the town council who agree with you, or assist you in endeavouring to carry out public improvements of that character?—To the best of my recollection upon most occasions the council have been willing, and cheerfully willing, to do everything which the sanitary condition of the town required.

1245. Do you believe that to be the general feeling of the council?—I believe so.

1246. Does there exist to any extent an opposition, as is very commonly the case in town councils, against doing anything which may incur expense, and increase the rates upon the inhabitants?—Undoubtedly; the consideration of expense restrains the council in the performance of a great many acts which might contribute to the improvement of the town, not only in sanitary matters, but in every other way. There has been great reluctance indeed to adopt any mode of proceeding which would entail upon the council the necessity of increasing the rates upon the inhabitants.

1247. Has that feeling operated in the continuance of many things which the members of the council felt would have been better removed?—I do not at this moment remember any particular instance of the kind; but it may be accepted as a general principle, it must be admitted.

1248. (*Chairman.*) That is the case in most places?—It is.

1249. Has it operated with greater intensity here than in other places?—I am not aware that it has.

1250. (*Mr. Bateman.*) The members of the town council of course are elected by the rate-payers generally?—Yes.

1251. What class numerically do the rate-payers consist of?—Numerically, I should say that the class of persons, whom you might regard as intermediate between the working classes and the higher classes, in most wards formed the majority. Of course the wards vary considerably.

1252. (*Chairman.*) The higher class of mechanics and artizans, and small shopkeepers?—Yes.

1253. (*Mr. Bateman.*) What kind of representatives do the ratepayers generally send to the council?—They send every description; because some of the wards, of course, consist of a larger proportion of highly-educated persons, who it seems have their eyes a little more open to the importance of sanitary measures. I must say, though, that to the best of my recollection, when sanitary considerations were before the inhabitants of this town generally, some years ago, the most energetic and the most enthusiastic of our supporters were to be found actually amongst the working classes. I remember also, very distinctly, at that particular time, that after the appointment of the sanitary committee appeared almost forgotten, and the committee had proved utterly inoperative, the working men had a sanitary committee-room, which I think was subsequently converted into a reading-room; that they continued organized long after any other party did, and they appeared more attentive to the subject than their better educated neighbours.

1254. Do you know whether these men were ratepayers to any extent?—I do not think the majority of them were.

1255. Then they could not be represented in the town council?—No.

1256. (*Mr. Simon.*) But they were the persons who suffered most from the state of the town having been neglected?—In all probability.

1257. (*Chairman.*) Supposing that during the late outbreak of cholera, out of 1,527 deaths, 1,174 were in the class of artificers and labourers, you would not think it a matter of surprise, if they came to a knowledge of those or similar facts, that they should take the steps which you have mentioned?—Probably not.

1258. (*Mr. Bateman.*) A large proportion of the labouring classes live in tenements?—Yes

1259. Do you happen to know the rental that they pay per room?—No.

1260. We have been told that it would be from 1*s.* to 1*s.* 6*d.* a-room per week. Of course there must be a large amount of owners of tenemented property, and thus the ownership of tenemented property forms an important element in the constitution of your town council?—It forms an important element; but it certainly has not a preponderating influence.

1261. Has it such an influence as would make the town council reluctant to interfere with anything which might affect the tenemented dwellings?—I think not.

1262. (*Mr. Simon.*) You took part in the committee of the Sanitary Association, and brought under the notice of the town council the defects of drainage?—I did.

1263. As a member of the town council also, had you any opportunities of following up that subject?—I do not remember that I had; my occupations prevented my taking the initiative in the council, and I do not think that my attention was very strongly directed to the point afterwards.

1264. We may probably take for granted that you would express to the town council, or to the committees of the town council with which you may have been associated, the opinions which you entertained on the necessity for an effective drainage of the town?—I should say that in all probability I have done so, though I have no strong remembrance of any particular instance. I have always held a decided opinion upon the subject, and have generally expressed it everywhere.

1265. If, in consequence of the resolution of your committee in the year 1848, proceedings had been adopted and an increase of power had been obtained from Parliament, and if the drainage of the town had been heartily and thoroughly set about, do you believe that there would have been a considerable difference in the prevalence of cholera at the late outbreak?—I do.

1266. I have here an Act dated 29th July 1850, "for extending and amending the "Acts for regulating and improving the borough of Newcastle-upon-Tyne;" there was then an opportunity of obtaining any increased powers which might be requisite with respect to the drainage of houses. Can you at all remember whether you at that time pressed upon the town council the necessity of then obtaining such increased powers for house drainage?—I cannot distinctly remember.

1267. Do you believe that the corporation possesses at the present time all the powers that are requisite for the improvement of houses within the municipal jurisdiction?—At the present time I think the corporation does.

Mr. Town Clerk: Our perfect power dates from the last Act, 1853.

1268. (*Mr. Simon to Sir John Fife.*) After such a recommendation as your committee made to the town council in the year 1848 of the necessity for improved drainage, you would consider it a serious defect in a bill in Parliament in the year 1850 that it contained only imperfect provisions for securing the drainage of private premises into sewers?—I should consider it a serious difficulty.

1269. (*Chairman.*) You have favoured us with your opinion upon the points of sewers and of privies. Have you had occasion, in your experience of Sandgate, or of any other district, say Pandon, to consider the effect which the form of house construction, there most prevalent, would have on ventilation?—I consider that the effect which it would have on ventilation has been most unfavourable. I conceive that the window-tax operated most injuriously upon ventilation as it formerly existed. I have reason to believe that builders, n building houses for persons of very limited circumstances, considered that.

1270. In your experience of Sandgate, you have found old windows blocked up?—Yes, I have seen such things.

1271. Frequently, or only occasionally?—I do not know that I have noticed such things frequently; but it seems familiar to my recollection.

1272. Do you believe that since the house tax was substituted for the window tax, any considerable number of those blocked-up-windows have been knocked out again, or that new windows have been knocked into the walls in these ill-conditioned houses?—I dare say that, where the tenants could prevail upon their landlords to make such improvements for them, they have been; but I am afraid they may not have been made very extensively.

1273. Alluding to the form of house construction, which I understand to be the rule and not the exception in Sandgate, namely, that houses are built back to back, with very narrow chinks or alleys only between their fronts; would you consider that any improvements in sewerage, in draining, or in privy and ash-pit accommodation, could reasonably be expected to put such a district as that into a satisfactory sanitary state?—So long as the houses stand back to back, and with only narrow passages between them, I should in that case consider the situation of Sandgate, even with all the advantages of sewerage and drainage, to be hopeless, in a sanitary point of view.

1274. (*Mr. Simon.*) That, if you drained it ever so well, you would have to spread it over a square mile to make it healthy?—Yes.

1275. (*Mr. Bateman.*) To depopulate it?—I am not sure that depopulation would be necessary, because I know that there are some model houses in London, a considerable number of stories in height—I have seen some which have been exceedingly successful.

1276. Have they alleys from four to six feet wide round them?—No; but to the best of my recollection, the plan showed four or five flights under one roof, one above another; so that a very great population might occupy a well ventilated building upon a comparatively small area.

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1277. (*Mr. Simon.*) With a proportionate breadth of street?—I should not be inclined to think that any considerable breadth of street existed.

1278. But you have no doubt that a greater width of street would be necessary to afford proper ventilation in tall houses?—I have not a doubt that a greater width of street would be necessary, if buildings were very high.

1279. (*Chairman.*) Apart from the question of house construction, is it within your knowledge that a large proportion of the district of Sandgate consists of old dilapidated, more or less rotten, damp-walled houses?—Yes.

1280. That a considerable portion of Sandgate is built, not of brick, but with timber?—I remember observing wood in many places.

1281. That timber being so rotten in some places, that you could drive the point of a common steel umbrella some way into it?—I have no doubt of it.

1282. Do you conceive that, if you abolished every alternate double row in Sandgate, houses, the materials of whose walls were in such a state as that, could by any possibility be put into a satisfactory sanitary condition?—I think not.

1283. Do you not then see, in the existing condition of Sandgate, such elements of a necessarily bad sanitary state, as to render the opinion which has been delivered here as to the necessity of literally abolishing the place, reasonable in your eyes?—I think it would be reasonable.

1284. (*Mr. Simon.*) Are we rightly informed that a considerable proportion of Sandgate is the property of the corporation?—I am not sure what proportion of it, but I believe the corporation possesses a good deal of property there.

1285. (*Chairman.*) For how many years do you think that this district of Sandgate has been in this condition, namely—not only unfit for human habitation, but practically incapable of being rendered fit for human habitation?—It is amongst the recollections of my childhood, to have seen Sandgate with very open eyes indeed, as a wonderful place; and to the best of my recollection, Sandgate was very considerably worse then than it is now. I am quite sure that for forty or forty-five years, Sandgate has not been getting worse unless it be by the supposed accumulation of the germs of noxious effluvia.

1286. (*Mr. Bateman.*) Has there been no change in the character of the inhabitants in that time?—There has been a great change in the character of the inhabitants; because there were a larger proportion of people living in the place formerly, than of late years.

1287. Was it not formerly largely occupied by keelmen?—It was.

1288. And are not keelmen among the cleanest of your inhabitants in Newcastle?—I think on the whole they have been tolerably cleanly.

1289. Then if, forty-five years ago, it was inhabited by cleanly people like keelmen, and it is now inhabited by dirty people, like Irishmen, is it not likely that the sanitary condition of that place has been getting worse?—I should rather expect from keelmen, that they would have a very natural way of doing things; and I should very much doubt whether they were particularly fastidious or nice in some of those habits which seem to have shocked others.

1290. Have you been in their houses?—I have.

1291. Are not their houses rather patterns of cleanliness than otherwise?—I have seen them very cleanly and very tastefully ornamented to some extent.

1292. (*Mr. Simon.*) I suppose it would hardly happen that you are called to perform surgical operations in these poorer localities?—Now and then, but very seldom.

1293. Should you look sanguinely to the result of a surgical operation, supposing you were called upon to perform one there?—I should not be so sanguine of its success in any place which was tainted in its atmosphere, or low in its situation, or damp, as in a more elevated and well drained and comparatively pure locality.

1294. Your infirmary here is upon high ground?—Yes.

1295. Do you suffer from damp at all?—We thought we did at one time. Some very active measures have been taken to improve its drainage; and since we have filled up a hollow, where sometimes stagnant water might have lodged, the infirmary has suffered less from erysipelas and gangrene. It is a subject which has deeply interested us of late years—and we have been exceedingly jealous indeed of its ventilation, and of preserving an open space around it on every side.

1296. And you believe that you have materially improved its sanitary condition by attention to drainage?—That is my opinion, and although we have added very considerably to the extent of the building, yet I conceive that the drainage of the whole has been improved by filling up this hollow, arching it over, making a large thorough drain, and providing against moisture.

1297. Used you to suffer largely from erysipelas?—Very largely indeed, and it ran from bed to bed.

1298. Were you crowded there?—We have been exceedingly crowded, and very often the prevalence of erysipelas has been in proportion to the number in the house.

1299. Have you seen much of gangrene?—Not lately.

1300. (*Chairman.*) In the infirmary report of 1852, I read this statement: "At a "meeting of the medical officers, a sub-committee, consisting of Dr. Cargill, Mr. Potter, "and Mr. Gibb, was appointed to report upon" that matter of erysipelas; and they report in these terms:—"In the ravine, west of the building——?"—That is the ravine to which I alluded.

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1301. "A space now in process of being filled up by the corporation—we found that "the material used for that purpose is chiefly the mud from the streets, and we believe "that this deposit, though frequently very liquid, is not a source of infectious miasm. "Near the south corner we found a large open manhole, communicating with the large "sewer which runs through that part of the infirmary grounds, and giving out very "offensive effluvia—" but which, they also came to the conclusion, was not *the* source. They say that they further examined, near the west end of the burial-ground, a privy of very bad construction, but that they came to the conclusion that the effluvia from it were also not the cause of which they were in search; and they state: "We did not detect any "other source, external to the building, from which erysipelatous or other diseases might "spring." The report then goes on to state that the conclusion to which they came was, that the prevalence of erysipelas in the infirmary was due mainly to overcrowding and want of ventilation; that, acting on that impression, they decreased the numbers in the institution, and improved the ventilation; and that the result of those operations was almost to drive erysipelas out of the infirmary?—But I happen to know that, contemporaneously with these operations of diminishing the crowded state of the wards, the manhole was closed, and not only was it closed, but the filling up of this ravine was completed. I have no doubt, when the ravine was half filled up, and particularly filled up with street mud, effluvia might have arisen from it, and even, for the time, have been increased; but since the complete filling up of the ravine, and the shutting of this aperture, and securing the institution in every possible way against dampness, I have no doubt the atmosphere round has improved.

1302. Have you ever noticed the state of the walls, as well as of the timbers to which you alluded, in the district of Sandgate?—I think I observed the walls to be damp.

1303. I think you said that the district was worse fifty years ago than it is now?—I think so, because the pavement was so much worse.

1304. Should I be correct in the assumption, that for fifty years past the walls of a large proportion of the tenements in Sandgate have, from time to time, been more or less damp?—I think so.

1305. Do you think that the walls of a building can, for that length of time, be periodically damp, without the sanitary condition of that building being very materially impaired?—The sanitary condition of the house must be most materially impaired in that one respect.

1306. Must not the houses, in that respect, have become rapidly more and more unfit for human habitation?—I am not so sure of the progress of the evil beyond a certain point; because, admitting that the walls of the houses in Sandgate were damp, to a certain degree, through all the seasons of the year fifty years ago, I am not quite sure that they would be much more damp at the present time.

1307. Would the continuous dampness of either brick or timber tend to rot it?—I have no doubt it would.

1308. Do you think that a habitation within rotten walls is conducive to health?—I am not sure whether the first stage of the decay of wood, and the effluvium arising by evaporation from it in that stage, is not quite as injurious as the effluvium from it in the last stage.

1309. The progress of decomposition in wood under such circumstances, I suppose, is from the surface inwards?—From the surface inwards.

1310. Do you not think that the deleterious effects of timber, which is rotten to the core, are greater than the deleterious effects of timber which is only rotten on the exterior?—I do not, and for a great many years I had a very strong opinion on that subject. If I had my own way, I never would allow the boards of a hospital to be washed; I would have them dry-rubbed over. I am of opinion that there is no effluvium more injurious than that which arises from fresh, sound wood, wet, and gradually drying by evaporation.

1311. Do you think that the evil effects arising from the dampness of sound boards are equal to the evil effects arising from the dampness of rotten boards?—I have long held that opinion.

1312. Would the opinion which you have thus expressed with regard to timber, namely, that it would be as bad to have the outside of it wet or rotten as to have the whole timber rotten to the core; would that also apply to the case of soil, and would you think that a soil, the surface of which was wet or plastered with excrements, was as injurious as a soil saturated with wet and excrement to the centre of the globe?—Certainly not; because the superficial portion of it would be most saturated, and possibly more and more saturated; but I conceive that when wood has gone through a certain process of decay, when the external part of it has passed through certain changes, noxious effluvia cease to emanate from it.

1313. (*Mr. Simon.*) Are you aware that a very large population in this town is distributed in what are called tenemented houses—houses let in separate tenements?—Yes.

1314. Where a single family inhabits a single room?—Yes.

1315. And where, in some cases, that family additionally takes lodgers?—I know that to be the case too.

1316. You would consider that houses of that kind require very frequent and very careful supervision?—Certainly.

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1317. That they would be apt to get filthy and unwholesome?—Yes.

1318. You have perhaps at this moment hardly a knowledge of them sufficiently intimate to enable you to say whether, in a large part of Newcastle, these dwellings are at the present time filthy and unwholesome?—I cannot pretend to give a strong opinion upon that subject.

1319. But so far as your knowledge extends, what should you say?—So far as my knowledge extends they are so.

1320. You would think it very desirable that any powers possessed by the corporation for cleansing filthy and unwholesome dwellings should be exercised in respect of houses of this description?—I do think so.

1321. Would you likewise think it desirable that the powers possessed by the corporation for the construction and maintenance of lodging-houses for the use of the poorer classes should be exercised?—I am not sure whether that would not be better done by some private or public company. I happen to know that at this time a great many wealthy persons have put down their names for subscriptions to a considerable amount; the object of which is to construct a great extent of model houses for the working men; or houses upon a sanitary model at all events; and it is to be one of the rules of this company that they shall not take any return exceeding 4½ or 5 per cent.

1322. (*Chairman.*) That is a branch of the Metropolitan Association, is it not?—Not a branch; I think it is an independent party, and I do not know whether they would not do it quite as well at the corporation.

1323. You are interested in the Whittle Dean Company, are you not?—I was so years ago. I ceased to be interested in the Whittle Dean Water Company, to the best my recollection, about four and a half or five years ago.

1324. In speaking of such districts as we have been speaking of—Sandgate, Pandon, and so on—did you find the water supply there, in your opinion, adequate and sufficient?—Do you mean from the Whittle Dean Company?

1325. From any source?—I remember a pant of very good water, as I believe it to be, at the end of Sandgate.

1326. (*Mr. Town Clerk.*) In the milk market?—Yes.

1327. (*Chairman.*) Do you think that the inhabitants of the courts, and lanes, and chares or whatever they are called, in Sandgate, have an adequate supply of water in any particular?—I never heard it complained that they had not. I remember a pant at each end of Sandgate.

1328. The length of Sandgate I suppose may be some 400 or 500 yards?—I think so.

1329. Do you think that the necessity of having to go out in all weathers, and bring water say 100 or 150 yards on the average, and carry it up a number of steps or stairs, might have any effect in deterring this poor and ignorant population from the use of water?—I doubt it; because I think they would probably use the river water for washing and other ablutions; while perhaps they reserve the water from the pant for drinking and cooking.

1330. (*Mr. Simon.*) Should you recommend their using the river water for washing?—I do not so much object to it. I do not think it easy to contaminate so very large a stream.

1331. (*Chairman.*) Supposing the Tyne water to be contaminated; and supposing poor people to wash their clothes in this contaminated water in their own rooms, and to hang them up, saturated with it and with what the tissue of the clothes may retain from it, in their own rooms to dry, would that, in your opinion, be conducive to the health of the inhabitants there?—I do not think that hanging clothes to dry in a room which people occupy, supposing the clothes to have been washed with the purest water, is conducive to health; but I imagine that any animal matter in the water of the Tyne must be too much diluted to operate as a very strong poison.

1332. (*Mr. Simon.*) Do you consider that in giving a pant at one end of Sandgate, and a pant at the other end of Sandgate, the distance being several hundred yards, sufficient provision is made for the supply of the poor population dwelling intermediately between those pants?—I think that they may get as much water as they want.

1333. But as much as they ought to want?—No, not as much as they ought to want.

1334. Then you would consider it a defective supply of water?—Perhaps it might be so. I have no doubt that if an abundant supply could be more completely obtained, a much larger quantity would habitually be used.

1335. (*Mr. Town Clerk.*) Are you not aware, that between these two pants, at each extremity, there are several taps of the Whittle Dean water?—I am aware that there are.

1336. (*Chairman.*) Supposing powers could have been obtained for the purpose of compelling landlords, negligent of their duty, to perform that duty, in respect of supplying their tenants with as much water as is necessary for health, do you think that the circumstances of Newcastle have been such as to call upon the local authorities, at any soliciting of a local act, to obtain such powers, with a view to compelling landlords, who would not willingly do their duty to their tenants, to do it under penalties and upon compulsion?—I have some doubt whether the inhabitants of any part of the town have ever been so very badly supplied with water as to induce them to appeal to the corporation, and urge them to obtain better.

1337. Do you not think that it would have been desirable for the local authorities, who, so to say, are charged with the care of people who are too ignorant and too poor to be

able to take care of themselves, to endeavour to obtain such a power for compelling reluctant landlords to do their duty in such respect?—I do think so.

1338. (*Mr. Simon.*) In respect of house drainage, do you think the same?—It is most desirable.

1339. Reverting to the condition of the population which is distributed in tenemented houses, and of the families occupying single rooms, your experience of the condition of that population and of their rooms would lead you to consider it desirable that any practicable rules should be enforced for the procuring of cleanliness and for the diminishing of overcrowding in such places?—Most desirable.

1340. There are powers given to the corporation in the 109th clause of the Local Act of 1846, by which they are enabled to make byelaws, laying down rules for cleansing filthy and unwholesome dwellings. Are you aware, as a member of the town council and as a magistrate of the borough, whether previously to the outbreak of the cholera in 1853 any such byelaws had been made or enforced?—I am not aware that they had either been made or enforced, because I have understood that it is only since the year 1850, or, perhaps, unless I am corrected by Mr. Town Clerk, since the passing of the last Town Improvement Act in 1853, that we have really had full powers.

1341. That is in respect of house-drainage: but the question now is in respect of the cleansing of filthy and unwholesome dwellings, such as those where single families inhabit single rooms, sometimes taking a great quantity of lodgers in them?—No. I have not been aware that we have had such powers, I confess.

1342. Have you not been aware of the existence of such powers?—Not of the existence of such powers.

1343. (*Chairman.*) Reverting to the question of water, is it within your knowledge that the Whittle Dean Water Company have been willing to supply, at very reasonable rates, the inhabitants of certain courts which are now destitute of any private supply, provided the landlords of those courts would have been willing to become responsible for the rates, and to relieve the company of the great trouble and expense of getting their rates out of the individual occupiers?—I have no doubt of the fact, though I do not remember at the moment any particular instance.

1344. Supposing such a state of things to have existed for some years, do you not think it would have been desirable to take power by one or other of the Local Acts obtained since the establishment of that water company, for making the landlords of these unsupplied courts and entries liable to the rates incurrable on a proper supply?—I think so.

1345. (*Chairman to Mr. Town Clerk.*) Could you not, in this last Local Act of 1853, have taken powers to make the landlords or the owners of property below the net annual value mentioned in section 65 of that Act liable to pay the rates to the water company for the supply of water to their tenants, as well as to pay the borough rates on their property thereby authorised? Could you not have introduced a clause analagous to those in the Towns Improvement and Public Health Acts?

(*Mr. Town Clerk.*) I cannot say whether such a clause might have been possible or not; the landlords probably would have resisted it.

1346. (*Chairman.*) Would it be right, on the resistance of landlords evincing so obvious a neglect of their duty, to abandon such an intention?

(*Mr. Town Clerk.*) I am not aware of a case where the water is supplied by a commercial company, in which the local authorities have power to force anybody to take the water of that company.

1347. (*Mr. Simon.*) The city of London has.

(*Mr. Town Clerk.*) Under a peculiar Act.

1348. (*Mr. Simon.*) I can answer for that upon my own knowledge.

(*Mr. Town Clerk.*) I am not aware of its existing, unless in Manchester, for instance, and other large towns, in which the Public Health Act prevails. That is the principle upon which that Act is founded as to water, that the inhabitants are rated for the expense of the water works, and the water is administered to them.

1349. (*Chairman to Sir John Fife.*) Supposing a landlord, or any number of landlords, in a municipality to be unwilling to discharge their duties to their tenants by supplying them with an amount of water requisite for the necessities of life, do you, or do you not, think that it would be right for the local authorities of such a place to step in between, or to endeavour to step in between, these landlords and the health of their tenants?—I think it most desirable that we should have got such powers, if we could.

1350. In your opinion is it one object of the institution of municipal authorities, that they provide for the well-being of those individuals of that municipality, who may not be able to secure such advantages for themselves?—One of the most important.

1351. Is it within your knowledge then, as regards water for instance, that the town council of this place have made any efforts, in that respect, to step in between the poorer tenants and their landlords?—I believe that no such effort was made through the medium of any of the Acts of Parliament applied for. I am not aware of any.

1352. (*Mr. Town Clerk.*) The provisions of the last Act of Parliament were very fully discussed?—Yes.

1353.—Was it ever suggested by any one to the town council that they should endeavour to get into that act a clause to compel people to take the water of the water company?—No such suggestion was made.

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1354. (*Chairman.*) Do you, as a member of the corporation, conceive it possible that the town council should at that time have been ignorant of the state of the inhabitants of those districts in respect of water supply?—Not that they should have been absolutely ignorant of it, but that the supply of water had not been so defective as many persons suppose, because, had it been so, it is quite impossible but that some of the councillors representing the wards where that poor population was, would have been pressed, by some part of the population, to direct their attention to that fact; for though the councillors are theoretically the representatives of the ratepayers, yet I conceive that they are virtually also, and they have been really, the representatives of the labouring classes of the people; and in every instance where the labouring classes of the people have any strong or pressing grievance to complain of, it is known to those who represent the wards in which these people reside. And it could scarcely have been passed over altogether if the people had expressed themselves as the subjects of excessive suffering from that cause.

1355. Are we justified in assuming, that at the time when the local Acts of 1850 and 1853 were solicited, the town council of this borough were ignorant of the state in which many of the inhabitants of some of the worst districts were, and are, in regard of water?—I think we must suppose them ignorant of it, if the deficiency has been as great as is now imagined. I am quite sure that there was no impression, while these Acts were under consideration, upon the mind of any portion of the council, or of any member of the council, that the working classes in this borough were suffering severely from want of water.

1356. (*Mr. Bateman.*) In obtaining these Acts at the various times at which you obtained them, was it the desire and intention of the corporation to acquire, at each successive period, all the powers which they thought desirable for the improvement of the town?—For that period.

1357. As far as their impressions or their information went, they left nothing out of their applications to Parliament, which they thought would be conducive to the welfare of the town?—They omitted nothing which they thought would be conducive to the welfare of the town. Subsequent experience discovered something new, and then another Town Improvement Act was applied for.

1358. That the gradual progress of enlightenment accounts for the number of local Acts?—For the number of local Acts?

1359. (*Mr. Simon.*) Have you formed any opinion of the quality of the water which was supplied to the town of Newcastle about the period of the recent epidemic?—I remember (to the best of my recollection it was in July) that the water became remarkably discoloured, and I heard frequent complaints of it. Some people imagined that some slight symptoms of bowel disorder about that time might be attributable to it.

1360. (*Chairman.*) As early as July?—To the best of my recollection it was in July; but I myself never cared much about it, because I supposed from the peculiar tinge of discoloration, that it arose from the water passing over moss and peat; and the inhabitants of hilly districts drink such water without experiencing any evil from it. I never ceased drinking it; but went on drinking it, averaging three tumblers per day.

1361. Did you notice both opacity and discolouration?—Yes.

1362. (*Mr. Simon.*) Opacity from passing through peat?—Yes.

1363. In as great a degree as in September?—I think so.

1364. Do you speak of the two months, from July to September?—To the best of my recollection it was in July and August that I observed the discolouration. I did not observe any in September.

1365. (*Mr. Bateman.*) Are you a water drinker?—Yes.

1366. And you did not hesitate to drink it?—Never; attributing it, as I did, to the discolouration of the moss.

1367. (*Chairman.*) Between July and September you do not think that you noticed anything further than such a discoloration as you would attribute to its passing over peat?—Just so.

1368. (*Mr. Simon.*) Knowing that about one-third of the water supply was derived from the river Tyne during that period?—I never was aware of that.

1369. But knowing it now, it being a matter of history, and a matter of evidence upon oath, would your opinion continue as to the turbidity of that water having been due solely to moss?—If I had been aware at that time that the water had been taken from the river, I should certainly have attributed its turbid character to its having been taken from that source; but the peculiar sort of tinge, which I remember in it, I never hesitated to attribute to moss, because I could not myself account for it in any other way; and it was so precisely like what I had observed before.

1370. Being at that time totally ignorant of the fact that it was partially derived from the Tyne?—Yes.

1371. Would you consider that water, consisting of two-thirds of Whittle Dean water and one-third of Tyne water, was a proper water to drink?—It would depend upon what part of the Tyne the proportion of Tyne water was taken from.

1372. If, however, it were so taken that, on a careful microscopic examination, it were found to contain vibriones, and, chemically examined, found to contain a certain quantity of organic matter—and probably you would look upon the vibriones as some evidence that that organic matter was undergoing decomposition—would you consider that to be

evidence of its ineligibility for drinking?—I should imagine that fastidiousness would be disgusted. I am not at all sure that that description of water has a very deleterious influence, because we know that horses and cattle thrive upon it better than they do upon water from a spring.

1373. (*Mr. Bateman.*) It depends upon the character of the spring?—There are few springs upon which a horse would keep his condition and thrive so well, as upon the water in a stagnant pond in his pasture.

1374. (*Mr. Simon.*) I will read you an analysis of this water: supposing it were found to contain 4.5 grains of decomposing organic animal matter in a gallon, and 2·68 grains of decomposing vegetable matter, should you, in that case, consider it water likely to produce diarrhœa?—I do not think that seven grains in a gallon would produce diarrhœa.

1375. You would, probably, think it a difficult thing to determine what quantity of organic matter would produce injurious effects?—Certainly a difficult thing.

1376. You would, no doubt, recollect the infinitesimal quantity of particular poisons which produce their results—the small-pox poison, for instance—and would hardly, perhaps, be disposed to measure the operation of organic poisons by the same rule as you would apply to oxalic acid or arsenic?—Of course, because the one generates and developes itself, multiplying its powers with its quantity.

1377. You would recognise certain of these matters not so much as poisons, perhaps, but as ferments; and you would consider it hazardous, at a time of epidemic disease, to make a part of the water supply of the population dependent on a river liable to the contaminations of sewage and other organic matters, however small that admixture might be?—Not only during the prevalence of an epidemic, but at all times I should object to it.

1378. And at the prevalence of an epidemic peculiarly so?—Certainly.

1379. And of a bowel epidemic most of all so?—Perhaps so.

1380. (*Chairman.*) You do not entertain the opinion that the quality of the water served out to the public in August and September did exercise any very material influence in causing or aggravating the recent outbreak?—I have not myself been able to establish that it did so.

1381. Not to trace it in any appreciable manner?—No.

1382. Have you anything to offer with regard to the gas?—I have reason to be dissatisfied with it. I believe that its character is not of the very best. Our pipes and bracket joints every now and then become foul.

1383. You would not suppose that bad gas would contribute, any more than bad water, to the health of the population?—Certainly, it would not conduce to the health of the population.

1384. But you have not been able to trace any appreciable influence of the impurity of the gas on the health of the population?—Chiefly because I have not been able to compare the gas of one city or town with the gas of another city or town, but I have very often noticed that persons who are very much exposed to burning gas, particularly in crowded rooms, suffered severely; the face was extraordinarily discoloured at the time, beyond that which the temperature could have produced, and I have perceived a nervous condition, which I have been in the habit of accounting for by the influence of the burning gas.

1385. It would tend to depress the general health, no doubt, but in any marked degree to aggravate the late epidemic?—I think the strongest man would feel, to a certain degree, its exhausting influence.

1386. (*Mr. Simon.*) Would you think, perhaps, that that might depend in part upon the absence of sufficient ventilation of the room in which the gas was employed?—I have no doubt that the injurious effect of gas upon the health is vastly aggravated by want of ventilation, because I have seen the evil corrected by an increased supply of air, and have observed that the rooms have been more comfortable afterwards, and have not exercised so injurious an influence upon the health of those in them.

1387. It would be difficult, then, to decide how much of the inconvenience experienced by gas-burners depends upon the unventilated state of the room and the retention of carbonic acid in the room, which would be a necessary result of unventilated gas-burning, and how much depends upon the presence of sulphurous acid?—Yes, it would be difficult to determine.

1388. But you still think that the gas here, in its combustion, does form a considerable quantity of sulphurous acid, and that that is hurtful?—I do.

1389. But not hurtful specifically in respect of the disease which we have to report upon?—Precisely.

1390. (*Chairman.*) Are you aware of any circumstances connected with the comparative immunity of the garrison?—I remember being told by several officers of the garrison, at different times, that they had cut off communication with the town, and that they were very strict in the hours kept by the men.

1391. Have you any opinion to offer as to any connexion of cause and effect which there may be between this comparative immunity and any local causes or precautionary measures?—The situation of the barracks being high and dry, and exposed to wind and cold in an extreme degree, must have been extremely favourable, I think, to the health of the garrison at that time.

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1392. Is the situation of the barracks materially different, in respect of height and dryness, from the situation of Spital Tongues?—Yes, I think the elevation of the barracks must be above that of Spital Tongues. It certainly showed no sign of damp or stagnant wet about it, and there is abundant evidence of that about Spital Tongues.

1393. Do you think that that arises from the difference of the soil?—I attribute it to the drainage.

1394. (*Mr. Simon.*) You think in Spital Tongues there is the absence of proper drainage?—That is my opinion.

1395. (*Chairman.*) The presence of proper drainage in the barracks may have had some influence then?—Most important.

1396. (*Mr. Simon.*) Proper drainage in Spital Tongues might have had some influence upon the cholera there too?—Provided there had not been a brick yard in Spital Tongues; and I directed attention to the fact that cholera had been very prevalent and very fatal in four or five situations in this neighbourhood, in two or three of which formerly it was scarcely at all known, but where during the last outbreak it had been fatal; the only change in them since the former visits of cholera having been the formation of a brick yard. I refer to Shield Field and Lovaine Place, where it was scarcely heard of before.

1397. (*Chairman.*) Have you gone into that subject sufficiently to form a confident opinion that no other change had taken place?—I am not aware of any other change. There is a considerable elevation, and it is considered generally one of the most salubrious parts in the neighbourhood of Newcastle.

1398. Have any new houses been built there?—There are new houses building in all these situations.

1399. Do you know whether those new houses are provided with drainage or sewerage in any form?—I am not aware; but I should expect that they were, because most of them are in excellent situations—houses of a better description.

1400. You have no personal knowledge on the subject?—No.

1401. Have you any opinion to offer with reference to the conduct of the Board of Health or its officers or any of them during the recent epidemic?—I had occasion frequently to regret that the concurrence and co-operation, harmonious if possible, of the whole of the professional men in the neighbourhood had not been at an early period obtained; and I have had conversations upon the subject with Dr. Gavin. I think Mr. Grainger's visit was so transient, and I had so few opportunities of seeing him, that I do not remember having conversed with him upon that subject; but I imagine that Mr. Grainger perhaps expected that Dr. Gavin should call together the profession, and that Dr. Gavin perhaps expected that Mr. Grainger had done so. This was the construction which I put upon the fact.

1402. (*Mr. Simon.*) Will you state what is the arrangement which you think would have been most desirable for them to adopt with the powers at their command?—I believe that the powers at their command were not of the greatest, and that they were given at too late a period to be useful. I believe that these gentlemen were not empowered to come to this place to give their advice or to afford assistance in any way, until it was far too late; and that this arose from the circumstance of the Board of Health being in the metropolis while the mischief was in Newcastle. I think the board of guardians might perhaps in the very first instance, by a little activity, have done some good by calling together the profession, and by laying down a complete plan of operation by which they might meet the epidemic.

1403. You think that the board of guardians should have undertaken that duty?—I think they should. I myself am a guardian, but only *ex officio*. I attended some meetings of the board at that time, and they seemed desirous to do their best. I think they might have been a little more active in the first instance, and perhaps a little more judicious afterwards.

1404. It has been suggested to us, and indeed put in evidence, that in this place there might be peculiar difficulties in obtaining that harmonious co-operation, which you have suggested it should have been the first endeavour of Mr. Grainger and Dr. Gavin, or of the board of guardians, to obtain?—I take upon myself to deny that allegation, so far as my knowledge extends, most sincerely and positively.

1405. (*Mr. Bateman.*) Do you think the gentlemen would have acted harmoniously if they had been called together?—I am perfectly convinced that they would have acted rightly.

1406. (*Mr. Simon.*) Perhaps you a little over-estimate the doubt which has been expressed to us. It has been suggested to us that a considerable and important portion of the medical profession of this town is divided, as it were, into two sects. It is impossible to doubt that they would have co-operated for a great public purpose; but it has been suggested to us that it was peculiarly difficult for a stranger arriving there extemporaneously, to bring these not usually co-operating elements into the harmonious condition which was desirable. Do you believe that that may have been possible?—I believe that it may have been possible; but I believe that the most successful course for a stranger under such circum-

stances, would have been to have ignored any such division. Gentlemen of both parties co-operate cordially in public institutions; and I therefore do not see why they should not have co-operated cordially in any great scheme or plan adopted by the board of guardians or any other local authority for the purpose of meeting the exigencies of the time.

1407. (*Mr. Bateman.*) Do you think that the board of guardians was at all deterred from taking such measures by any other cause than the one assumed with reference to the discord between the gentlemen of the medical profession?—The apprehension of increasing the rates, I imagine, operated with the board of guardians.

1408. (*Mr. Simon.*) Do you think that they could have called together any members of the profession here practising, not for consultation merely, but with a view to obtain their services for the suppression of the disease?—A great many, like myself, could not allow themselves to be retained by the board of course: only a certain proportion could; but in that the guardians were certainly unfortunate, because they got assistance from great distances, and a number of persons not fully qualified were brought to afford that assistance, when I happen to know that at the time there were several gentlemen in the town who might have been retained by the board, who were fully qualified; men of attainments, men of natural talent, and men who had seen the disease in 1832, and in 1849, and who really knew what cholera was; and it is very much to be regretted, that these gentlemen were not retained by the board of guardians, before a number of strangers were brought from distant places, many of whom had never seen cholera before.

1409. You conceive, then, that the responsibility of that part of the transaction rests entirely with the board of guardians?—With reference to obtaining the services of distant strangers, and neglecting those which might have been had nearer at hand, certainly.

1410. Is there any other charge, any other statement inculpatory either of the Board of Health, or of its officers, of which you are cognizant, and to which you would give any sanction whatever?—When you say any other charge, I rather wish it to be understood that I make no charge.

1411. If there has been any inculpation of the Board of Health, or of its officers, would you sanction it with relation to the late epidemic?—I do not remember any. I think that the officers of the Board of Health might have rendered greater service here, if power had been given to them by the Privy Council to enable them to arrive at Newcastle a fortnight or three weeks, or a month, sooner than they came.

1412. But seeing the limitations in the state of the law, put upon the operations of the Board of Health, do you believe that all that could be done by the Board of Health and its officers, was done here?—I do believe it.

1413. And so far as your knowledge extends, you have no belief in any inefficiency or apathy, or indifference, or any fault whatsoever imputable to the gentlemen who were charged with the care of the persons in this town?—I acquit them entirely; the faults of the system are not to be visited upon the officers.

1414. And the faults of the system, if I rightly understand you, are the faults of the law, which requires a certain machinery to be put in operation before the Board of Health can act authoritatively?—Undoubtedly.

1415. (*Mr. Bateman.*) Assuming that there is a fault in the law which does not allow the body to act so expeditiously as is desirable in a case of this kind, do you think that reliance upon it in any way operated upon the guardians?—I think it might have done.

1416. In such a way as to render them less active and less energetic in the first instance than they would otherwise have been?—That is very probable.

1417. (*Chairman.*) Then am I to understand you that the appearance and presence here of these Board of Health officers, in the absence of adequate powers at the moment of their appearance, may have had a bad influence?—I think it may have had an influence.

1418. That they should, if possible, have come invested with all the powers which at any time it was desirable they should exercise?—Certainly.

1419. (*Mr. Simon.*) But although from the state of the law they were powerless during the early days of the epidemic, do you think that their presence in the town, and the advice they were able to give the authorities, although not authoritative advice, still was of service?—I think it was.

1420. (*Mr. Bateman.*) Would you consider, that generally speaking, better results would follow from each place depending upon its own local exertions, than upon those of some foreign body?—I think so. I think it is one of those instances in which the system of centralization is objectionable. I think that a local authority might not only be more immediately available, but more acceptable in its proceedings.

1421. (*Mr. Simon.*) There is a last point on which we should be very glad to have your evidence, owing to your position in practice, your position as a magistrate, and as a member of the town council, but particularly as a medical member of the town council. We should be very glad if you could tell us your opinion of the progress on the whole which has been made by the town council during the last few years in works of sanitary improvement?—I remember some very great and extensive works in new sewerage.

1422. You would probably consider that sewerage would be of importance only when the houses drained into the sewers; but not without?—It would be inoperative without.

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1423. How long have you been connected with the corporation?—Since the passing of the Municipal Reform Act in 1835.

1424. Within that time can you trace any important sanitary improvements carried out by the corporation?—Paving and flagging, and, unavoidably, along with those you include surface drainage. Deep and extensive sewers, also, have been formed. Those are the most important points that I remember. In many situations, too, the ventilation has been materially improved by masses of old buildings being pulled down and streets widened.

1425. Where?—In Newgate-street; at the end of Grainger-street; in the Side, as it is commonly called, near a place where boats were once moored a century ago, near the bottom of Dean-street; in the Close, which is in a line direct west from this building, a sort of Thames-street of Newcastle.

1426. (*Mr. Town Clerk.*) You must not forget the city of Sandgate?—And in the city of Sandgate.

1427. (*Mr. Simon.*) Do those constitute, in your judgment, the most important sanitary improvements?—To the best of my recollection.

1428. A greater extent of paving, by which the running off of filth from the surface has been assisted?—Yes; and a very great improvement in flagging.

1429. I included that in paving. A considerable extension of sewerage but without drains?—I am afraid we had not power to oblige the inhabitants to make private drains from their residences into the sewers.

1430. And the destruction of certain bad neighbourhoods in the progressive construction of new streets?—Constant progressive work of that kind; every year will furnish some instance, I have no doubt. If you refer to the reports of the Town Improvement Committee, I have no doubt that every year will show considerable operations of that kind, and large sums annually expended.

1431. In model lodging-houses nothing I believe has been done?—Yes: by a gentleman on the other side of the river.

1432. But by the town council on this side of the river?—By the town council nothing; but there have been baths and wash-houses erected for the working classes.

1433. In supervision of the dwellings of the poorer classes has anything been done?—I am afraid little or nothing.

1434. In the obtaining of powers to enforce sanitary improvements on landlord?—In the last Town Improvement Act of 1853 such powers have been obtained.

1435. Towards the end of your nineteen years' struggle for sanitary interests in the corporation?—Yes.

1436. (*Chairman.*) Are we fully in possession of your views on the various points of this matter?—So far as I can at this moment recollect.

1437. (*Mr. Town Clerk.*) In an early period of your examination you spoke of the exhalations from the surface of the town of Newcastle—do you think that the exhalations from Newcastle are distinguishable from those of other great towns, for instance from the old town of Edinburgh, with which you are familiar?—I undertake to say that in point of intensity, and in point of the small diminution of these exhalations, the city of Edinburgh as far exceeds Newcastle as it does in ancient fame and dignity.

1438. (*Chairman.*) Do you think that the rates of mortality bear a corresponding proportion?—I am not aware of that; I have not compared them, but Edinburgh is placed where a sanitary board would have placed her. She is placed upon a foundation almost of rock, at a considerable elevation and remarkably open to the wind in every direction; and Edinburgh ought to be one of the healthiest cities in the empire.

1439. (*Mr. Simon.*) Have you looked critically at comparative death-rates?—I have not.

1440. Are you aware that up the Tyne some distance there is a district where, during a period of seven years, the average mortality was 14 in 1,000, and that there are very large districts in England where the average mortality is from 15 to 18 per 1,000—a mixed population, town and country?—I was not aware of that.

1441. If, however, you have a considerable rural population in the neighbourhood, having a death-rate of 14 to the 1,000 for a period of seven years, and if the average death-rate for a period of fifteen years in Newcastle has exceeded 28 per 1,000, you would probably think that that pointed to considerable sanitary defects?—I should certainly think so.

1442 (*Mr. Town Clerk.*) Would you compare Newcastle with a rural district?—It is quite unfair to compare any town or city with any rural district, unless under peculiar circumstances.

1443. The rural district alluded to is the district of Haltwhistle, which is a peat district, inhabited by shepherds?—I should not think, for one moment, of comparing the two.

1444. (*Mr. Simon.*) Why not?—Because, in the first place, I have always thought that a mountain district is peculiarly salubrious, more so than any other. You find the strongest and hardiest people in the world in a mountain district.

1445. Do you not consider that an altitude, such as prevails here, of an elevation of 200 or 300 feet above the river, is sufficient for the purposes of health?—Sufficient for the purposes of health, assisted by good drainage.

1445. Then your point would be, that the difference is not a difference of elevation, but a want of drainage?—They must both be taken into consideration.

1447. What is the next reason for which you would think that you ought not to compare the two districts?—Because, wherever the population is more thinly scattered there is a purer atmosphere, and we find health and life prolonged.

1448. Then your second point is, that the unfairness of the comparison consists in this, that in Newcastle the population is more crowded?—In all cities.

1449. But take the particular case?—No doubt.

1450. Is there any other point which, in your opinion, makes the comparison unfair?—I think those points are sufficient to account for the difference.

1451. (*Mr. Town Clerk.*) Do you think that some effect is produced by the sick being attracted to Newcastle as the centre of medical advice?—There is no doubt that the rates of mortality are increased in that way. Our hospital is the resource of the worst cases from the three adjoining counties.

1452. (*Mr. Simon.*) What is the annual mortality of the hospital?—I cannot tell.

1453. Does it amount to 200 in the year?—I think not; but I cannot tell you the number. A vast number of people do not come directly to the hospital—do not become hospital patients.

1454. (*Chairman.*) Do you think that the same thing operates in a town like London as in a town like Newcastle?—I have no doubt of it.

1455. You think that the correction due to hospitals should be proportionately as great in London as in Newcastle?—I have no doubt of it.

1456. In the case of London, then, whose southern part, at all events, is partly below, partly level with, and partly but a few feet above high water level, supposing it should appear that the average mortality of the whole of the metropolis is 24 per mille, how do you propose to account to us for the fact that Newcastle, with its steep and comparatively elevated site, has, on the average of the last fifteen years, had a mortality of 28 per mille, rising last year to a mortality of 43 per mille?—I should have difficulty in accounting for it, unless it arise from the same cause which influences vegetation. I have very often looked at the foliage of the shrubs and trees in London. We see nothing like it in the interior parts of this town.

1457. (*Mr. Bateman.*) Are they more luxuriant here or there?—Infinitely more luxuriant there. In all probability, the contamination of the atmosphere by the exhalation of gases and by the quantity of smoke may have a considerable effect in shortening human life and increasing disease; but the effect upon vegetation is very considerable.

1458. (*Mr. Simon.*) Has the power ever been exercised with regard to smoke?—I once struggled very hard to pass a resolution to obtain powers to abate the smoke nuisance.

1459. You obtained a clause, I presume?—We obtained a clause, but not so strong as was desirable.

1460. Has it, to the extent of its strength, been worked?—It has not yet been acted upon, that I am aware.

1461. When did you obtain that clause?—Very recently indeed.

Mr. (*Town Clerk.*) We had a clause before, though not so strong as the last.

1462. (*Chairman.*) Referring to the question of the vegetation in London, would you really say that the whole of the vegetation in London is luxuriant; or would you confine it to the plane trees, which are very common there?—There are three or four others which are quite citizens, I think. The common poplar, the hawthorn, the lilac, and the hornbeam, all bear contamination very well, if they have a deep soil; but the pine can only live in a pure atmosphere. I apply it generally to the vegetation. In parts of London where the population is dense, we find vegetation luxuriant. On the other hand, in Newcastle nothing will grow.

1463. Would you dispute the opinion that, in the heart of the metropolis, nothing grew well but plane trees; and that the fact of the plane trees growing well, when other trees did not, was owing to the fact that these trees annually shed their bark, so as to get annually a fresh transpiratory surface?—I believe that the injurious effect of smoke upon vegetation is mainly from its action upon the leaf.

1464. (*Mr. Simon.*) Reverting for a moment to the comparison with which we started, of the low mortality of that rural district and the high mortality of this urban district, comparing that mortality of 14 per 1,000, even for the long period of seven years, with a mortality for the still longer period of fifteen years of 28 per 1,000, the inference which you are disposed to draw from that disparity is that in Newcastle the drainage is not sufficient and the crowding over-sufficient for the necessities of human life?—As in all great towns, I am not aware that Newcastle is more defective than other great towns in this particular. I have just thought of another cause of the high rate of mortality, and that is the number of accidents which very frequently occur in this town and neighbourhood, in which there is a very great loss of human life—accidents occurring in manufactories and mines. Now, although coal mines are exterior to the town, yet many of the pitmen, I have no doubt, live within the town, in those localities nearest to them; and, of course, when men are drowned in a mine or destroyed by an explosion, or when a number of men lose their lives by boiler explosions, or by any of those accidents which occur in great manufactories, those events must contribute largely to swell the rate of mortality.

1465. Would you say largely?—I think they contribute considerably. I never attempted to form an estimate of the precise proportion.

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1466. (*Mr. Superintending Inspector Lee.*) Are you acquainted with the Dudley, Bilston, and Wolverhampton district?—I know nothing of it.

1467. Are you aware that a similar statement was made in that district as to the loss of life by accidents greatly increasing the rates of mortality; and that, on inquiry, the increase was found to be only a fraction of 1 in 1,000 over a long series of years, when ascertained?—I am not.

1468. (*Chairman.*) You would not undertake to say that the whole mortality arising from the accidents in that very extensively mining country amounted to more than a fraction per mille?—I could not admit that.

1469. You would not undertake to deny that?—I should undertake to deny it with reference to this district.

1470. You would undertake to deny that, with reference to this district, the deaths attributable to accidents arising from mining and manufacturing causes are but a fraction per mille?—I should certainly expect them to be very much more, and believe them to be vastly more.

1471. (*Mr. Simon.*) Do you believe that, in a series of years, those deaths form a pretty constant annual average?—A pretty constant annual average.

1472. That one year would correspond pretty much with another?—Yes.

1473. We find by looking at the registrar general's account of the mortality here in Newcastle, that in 1844 the mortality was a low as 20·9 in the 1000 and that last year the mortality was as high as 43·3 in the 1000?—Yes; may not that have arisen from the increased care and accuracy in registration?

1474. The year when the mortality was under 21 in the 1000 was the year 1844—six years after the commencement of registration, when I believe it was as perfect as it is now. You attribute a good deal of importance to the smoke contamination of the air, as detrimental to life?—I do.

1475. And you are not aware of any efficient action yet against that nuisance and detriment?—The only information which I possess upon that subject is from the Glasgow committee, who have been very active and exceedingly successful in abating the nuisance. They have three different modes of proceeding, by which they state that they can meet almost every exigency. I am not prepared to describe these with any precision; but they boast that they can obviate any difficulties which may be met with in the use of any description of fuel, or in any description of furnace.

1476. But no such powers have been exercised in this town?—None whatever, except that we did something in relation to a brewery in Grey-street. I remember being complimented upon the success with which the immense quantity of smoke from that brewery had been diminished.

1477. Do you think that the quantity of smoke in the town has decreased?—It has increased, and progressively increased, I am afraid.

1478. As respects offensive trades, are you aware of any rules having been put in force for the regulation of them, or of slaughter houses?—I have an impression on my mind that something has been done with reference to that.

1479. Does your medical experience lead you to attribute any importance to the presence of tanneries, and similar trades in the town?—I remember in one or two instances observing, in the vicinity of tan yards, that erysipelas was more frequent than in other localities, or that some sympathetic or irritative fevers assumed a typhoid form.

1480. You would look upon that as being caused by such circumstances?—As arising from the tan yards.

E. Charlton, Esq., M.D.

23d Jan. 1854.

EDWARD CHARLTON, Esq., M.D., sworn.

1481. (*Chairman.*) You are physician to the infirmary of this place?—Yes.

1482. And to the fever hospital?—Yes.

1483. And to the dispensaries, both of Newcastle and Gateshead?—Yes.

1484. You were formerly President of the Royal Medical Society of Edinburgh?—Yes.

1485. How many years have you practised in this locality?—Between fourteen and fifteen.

1486. As an officer of the institutions to which I have alluded, may we, in your opinion, take the annual reports of those institutions as correct?—Yes.

1487. (*Mr. Simon.*) They are published with your concurrence?—Yes. I have only recently been attached to the infirmary—since April last. I have been eleven or twelve years at the Gateshead dispensary, and two years and rather more at the Newcastle dispensary and fever hospital.

1488. (*Chairman.*) With reference to one epidemic which is alluded to in those reports, namely, the epidemic of scarlatina in 1845, 1846, and 1847, I believe you paid particular attention, and wrote a pamphlet, did you not?—Yes.

1489. In that I find it stated, that the disease had been more or less frequent in the town from spring 1845 to spring 1846, but that it did not appear as an epidemic till spring 1846?—I believe it did not.

1490. That "during the summer and autumn of that year it prevailed in Newcastle, and "its neighbourhood, to an extent almost unprecedented, whether we regard the number "of cases that occurred, or the great mortality they occasioned?"—Yes.

1491. And that in your opinion, as far as you could ascertain, though scarlet fever had occasionally been both extensive and severe since 1778, yet, that since that year no such visitation had occurred as that of the year 1846?—None, I believe.

1492. In an after-part of that pamphlet I find it is written: "From all that we can learn, "the increase above the usual average of deaths from this epidemic cannot have been "much less than 700 in Newcastle, Gateshead, and the immediate vicinity of these two "boroughs?"—Yes.

1493. "While we must not forget that this fearful mortality has been still further aug- "mented by the prevalence of measles and hooping-cough." You then go on to state the details of the mortality among the children, and continue: "It may be truly said that had "such a mortality occurred among the adult portion of our population, a general panic "like that which prevailed in the cholera year would inevitably have ensued?"—I believe so.

1494. I believe that at that time the infant population among the better classes did not escape?—They did not escape.

1495. You say here, "Although the better classes by no means altogether escaped the late "epidemic, yet my inquiries and my experience have convinced me that by far the greatest "amount of mortality from the disease occurred in those parts of the town where there is "the most urgent necessity for sanitary improvement?"—That I am quite convinced of.

1496. "The fever was not confined to the ancient and low-lying streets along the water "side, on either bank of the Tyne; it spread through the streets and courts higher above "the level of that river, especially to those recently built houses, inhabited by numerous "families, about Arthur's Hill, to the densely crowded courts and narrow lanes at the foot "of Westgate-street and about the castle?"—Yes.

1497. "Still the disorder prevailed extensively in other spots apparently less subject to "deleterious influences. But those who know the general neglect of ventilation and "cleanliness, too apparent among our labouring population, will not wonder at the spread "of the epidemic in well situated streets; and the surprise of others will be lessened by the "well-known fact that many of these streets are totally without any but surface drainage. "Many of the courts are still unpaved; the wet and filth accumulates in the irregularities "of the surface, and soaks into the surrounding soil, until the whole works up into an almost "impassible quagmire." You still think that that was a correct statement both of facts and opinions?—Yes; at that time. It has been improved since, though much remains to be done.

1498. "In these localities, too, we find many families occupying one house; nay, more "than one family congregate in a single room; and in some of the lodging-houses we find "four or five beds in one small apartment, lighted by a single window, which is rarely "opened, and the rays of the sun have to struggle through the dirty panes patched with "paper, and must encounter still further obstacles in long lines of ill-washed linen, stretched "across the chamber."—That is quite the case.

1499. "We cannot then wonder at the mortality having been so great in these places?" —Yes; I can name localities corresponding to that description, especially in Gateshead.

1500. You think that these sanitary misconditions adequately accounted for the mortality then experienced?—Yes. I chiefly blame the overcrowding, which I consider to be the most fruitful cause of disease.

1501. Returning to the case of the mortality which had occurred among the higher classes, you proceed: "That cases of great malignity occasionally occurred among the "higher classes cannot be denied; but in a large town, like Newcastle, all ranks of society "even are, more or less, subjected to the deleterious influences we have alluded to; and "the health both of parents, and of their children, is undermined by a variety of causes, all "tending to reduce the standard of vitality, and predisposing to malignant disease?" —Yes.

1502. You still think that those opinions are correct?—Quite so.

1503. We have had evidence to this effect, that in the recent epidemic of 1853, the cholera was not quite confined to the low-lying or very ill-conditioned districts, but that it also spread among the higher classes in comparatively better situations. Do you think that the same explanation, which you there gave of the spread of scarlatina into such districts, will also account for the spread of the recent epidemic of cholera into those rather better districts?—I should in one respect, assuming cholera to bear the same character as scarlatina.

1504. Do you assume that?—I do. I assume them both to be contagious.

1505. (*Mr. Simon.*) You were a member of the medical committee of the Newcastle and Gateshead Sanitary Association?—I was.

1506. Which communicated a certain report to Robert Rawlinson, Esq., Superintending Inspector of the General Board of Health, in 1849?—I was a member of the association at that time. I did not communicate with Mr. Rawlinson myself.

1507. This is your signature?—I signed the report, certainly. I was not personally examined by Mr. Rawlinson.

1508. This is a report drawn up by the medical committee of that association, and signed by yourself, with several of your professional brethren here, Dr. White, Dr. Bulman, Mr. Glover, Mr. Greenhow, Mr. Dawson, Mr. Gibb, Dr. Robinson, Dr. Humble, Dr. Cargill, and others?—Yes.

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1509. (*Chairman.*) You are cognizant of the statements contained there?—Yes.

1510. (*Mr. Simon.*) We find there, in reference to the very trifling degree in which cholera had then lately afflicted the town, this paragraph:—"The comparatively few cases "of malignant cholera which have occurred in Newcastle supply, we think, amply "sufficient evidence both of the invariable dependence of attacks of this epidemic on "certain predisposing physical causes, and also of the necessity for continued vigilance on "the part of the authorities, lest this fearful disease, in the event of a second visitation "(by no means an uncommon accident in its erratic course), should exercise a more "destructive influence upon the inhabitants of Newcastle." In reading that, shall I be right in inferring from it that you recognise the influence of certain predisposing physical causes as tending to increase the malignity of this disease?—Yes.

1511. Speaking of the invariable dependence of attacks of this epidemic on certain predisposing physical causes, and leaving for a moment out of account solitary cases of cholera, but taking groups of cases only, would you still adhere to that opinion?—Yes. I may have modified my opinion regarding those physical causes; but certain physical causes, and certain local causes, I believe, can influence the disease. Whatever tends to lower the health of the population will naturally render persons predisposed to a disease, whether it is produced by contagion or by an epidemic in the atmosphere.

1512. Would you not, perhaps, think that a particular class of influences, tending to lower the health, act much more powerfully than certain others; as, for instance, that influences associated with uncleanliness, with defective drainage, with the accumulation of filth about houses, would act much more powerfully than causes of mere debility? Have you found, in your practice as a physician, that persons merely weakened by chronic diseases (say weakened by phthisis, weakened by exhausting suppurations, weakened by diabetes), have been particularly liable to cholera?—They went down very rapidly under it. I would not say that they were extraordinarily liable to it, but they went down rapidly if they did get the disease.

1513. Would you not, on the other hand, say, of persons living in undrained and stinking places, that they were peculiarly liable to attacks of cholera?—The cholera has undoubtedly prevailed greatly in those places; and those places are the ones in which the individuals are subject to the debilitating influences likewise which I allude to; but especially they are subject to that influence which is the worst of all, the want of a sufficient quantity of fresh air for health. Overcrowding I look upon as the greatest injury possible.

1514. Then we understand you, that the debility which predisposes them to cholera is produced by the local circumstances?—To a considerable extent.

1515. So that indirectly, if not directly, the difference with which cholera prevails in different districts you would take to be determined by social conditions of that kind?—In many cases; certainly in the large towns. In villages it appears to be different.

1516. Have you yourself been able to inquire into any severe outbreak of cholera in villages where sanitary conditions have been perfect?—I have directed my attention a good deal to this, for the purpose of tracing the spread of the disease from Newcastle. I shall be ready to give any information to the Commissioners that I possess upon that subject.

1517. We shall be very glad to have your evidence?—I do not suppose that any village, any place in existence, even any gentleman's house, can be said to be absolutely perfect with regard to ventilation; but I may also be permitted to make, preliminarily, one observation, and that is, that the condition of the atmosphere at the time the cholera broke out was, in my opinion, one of the greatest causes of its virulence. Everybody will recollect that the atmosphere at that time was the densest, the heaviest, and the closest atmosphere that perhaps has been felt in Newcastle for a great number of years; and that it was impossible to ventilate even large houses, such as we ourselves inhabit. No change of air seems to have taken place in those houses almost for a week together. So much the worse was it in the dwellings of the poor; and to that I ascribe a great deal of the fearful virulence of the disease, leaving out the question of the virulence of the contagion, which might, I believe, have been brought from abroad, and was so.

1518. There was a condition of atmosphere which you could feel as painfully oppressive—a hurtful condition of atmosphere?—Yes; there is no person present who will not call it a frightful condition of the atmosphere.

1519. But you believe also, that that atmospheric condition would operate most power fully in districts where the ordinary ventilation was most defective?—Unquestionably.

1520. Where there was crowding?—Yes, it reduced the better class of houses in many respects almost to the condition of the worst class; for there was no ventilation at all in any of them.

1521. And of course, with this stagnant condition of atmosphere, the influence of local nuisances would be much more felt than under other circumstances?—There is no question of that also.

1522. You spoke of some villages in which cholera had prevailed with severity?—Yes, I may mention one, the village of Whalton, to which I paid particular attention. I was four times out at Whalton—I saw the disease there at the commencement, and saw it during its progress. I made particular inquiries as to the condition of health previously to that time, and as to the sanitary condition of the village likewise.

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1523. What was the sanitary condition of the village?—I should consider myself, that the sanitary condition of that village is considerably above the average. It is regarded so in the descriptions of Northumberland. It is usually pointed out as one of the healthiest and best of villages in existence. As to its health, I can state from the evidence of the medical man who has practised there for a great number of years—nearly forty years—that he has scarcely sold twenty shillings worth of medicine throughout the year among the labouring classes in the village; and that if the village alone were a type of the district, he would be beggared.

1524. Is it an old village or one of recent construction?—It is an oldish village, chiefly standing upon freestone rock, which in some parts comes pretty near the surface. The direction of the freestone rock dips, as I should think, at an angle of 30.° I am not quite sure of the angle, scarcely so much I should think, and dipping towards the south; the rock rising towards the north, and cropping out a little above the village. The village looks to the south, and commands a wide prospect over Northumberland.

1525. What soil do the houses stand on?—The debris of the freestone rock—there is no particular clay soil.

1526. No stagnation of fluid around them?—No; the houses are very much separated; a large proportion of the houses in that village consist of isolated gentlemen's houses—villas we may call them—surrounded by gardens.

1527. Did the cholera prevail in those houses?—Yes, one half of the deaths prevailed in those very houses.

1528. How were those houses provided in respect of their refuse?—They had very large yards, water-closets,* and everything that is requisite, apparently.

1529. Cesspools?—I believe not.*

1530. Where would the refuse then run to?—It would be carried out into the drain.*

1531. Where to?—I do not exactly know where it would be carried to—I have not investigated that.*

1532. I suppose you can hardly imagine that there was any system of sewerage there?—No, there is none.

1533. Is it likely that the drainage of these houses passes into any open ditch or puddles just about the houses?—I do not think it can well enter any open ditch. There are some houses on the south side; the fall would naturally be in that direction, and those houses would, I suppose, be drained into some of the fields; of that I cannot speak from positive observation—I only suppose it from the fall of the ground and the nature of the houses, which are mansions.*

1534. I suppose you would hesitate, without having gone in detail through that matter of drainage, to speak of that case as an exception to the general principles which you have laid down here?—I should consider it as an exception decidedly in one respect—that it is a village above the ordinary average, with respect to its sanitary condition; and the best proof of this is, that no fever has ever been known to prevail there. Fever is unknown in that village.

1535. That would be conclusive as to one class, perhaps, of sanitary errors, but you would hardly think it so as to all, would you? Do you know anything about their water supply?—Yes, there are at least four very good wells in the village; there is one at the west end, one about the middle, one at the east end, and one at the churchyard below.

1536. Was there any difference in the prevalence of cholera according to the supply from one or other of these wells?—I believe not, it is all good drinking water; but the best drinking water is at the west end of the village, so Mr. Vardy tells me. I tasted the water there: it was uncommonly good.

1537. The explanation of that case, of course, is incomplete till one knows what becomes of the drainage; because if it lingers in any way about the houses, (and you have not yet provided it with an outfall,) or in cesspools under them, one cannot tell that the springs there are not contaminated by it, or that there is not soakage into the cellars there?—I believe it is not the general construction of the houses in Northumberland to have cesspools, as they have more in the south of England. Most of the gentlemen's houses in Northumberland are provided with drains following the fall, and getting away into some burn. I believe I am correct in stating that.*

1538. It would undoubtedly be an interesting fact to establish what the exact arrangements of drainage in this locality are?—The drainage cannot be very deep, as it is upon the freestone rock.

1539. (*Mr. Bateman.*) Are not the ground floors of the houses below the sod generally?—No, they almost all stand on a bank which falls away towards the south; one house, Mr. Meggison's, is, I think, about two inches below the soil.

1540. (*Mr. Simon.*) What is the population of this village?—I have not exactly ascertained the population; the population of the township is about 350, I think; that of the village would be less. (*The witness subsequently ascertained that it was about* 224.)

1541. (*Mr. Bateman.*) Are you of opinion that the cholera is contagious?—Yes, I hold that opinion.

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* The witness afterwards corrected his evidence on this point, and stated that there was only one water-closet in the village, viz. in the Rectory, from which the family were absent during the time of the cholera. All the other houses, excepting six cottages had privies.

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1542. Can you account for its travelling to Whalton in any way?—I can. There was not a case of diarrhœa at Whalton, nor had there been for a considerable time before. I made particular inquiries as to that, and had a letter also from Mr. Vardy stating the same fact. The carrier, of the name of Womach, came into Newcastle on the 9th of September, and he put up at places where the cholera was about; he came at first into the market in Nun's Street; several people had died about there at that time. We do not know whether he had had communication with cholera premises or not: but on his return to Whalton, where there had not been the slightest diarrhœa previously, he was taken on the Sunday with diarrhœa and vomiting. These symptoms continued on the Sunday, Monday, and Tuesday, and on the Wednesday it assumed the character of cholera, and he died on the Thursday morning. That was the first case. He was visited by a very considerable number of the people of the village; and of the cases which have since occurred, I can trace every one, I think, with the exception of one, which I have not followed up, because I was not very certain whether it was a case of cholera; as the person had been suffering from bronchitis, and was an old woman: I mean I have been able to trace every one of them to this original source of contagion.

1543. (*Chairman.*) I think you said that the usual course of drainage in such villages was an underground one along the natural slope of the soil to some burn?—Generally.*

1544. You have stated that in this case the freestone dips to the south?—Yes; therefore the fall would probably be that way; the fall of the water there is that way.*

1545. I presume that in this case it would be along the surface of the freestone?—Most likely; there is sufficient depth for drainage, because the fields are all rich to the south, especially the glebe fields of the rectory.

1546. Do you know how far from the houses may be the burn into which, as you say, those things generally debouch?—There is a burn—at least there is a ditch—of considerable size (but I cannot state that that is the one into which the whole of the drainage flows), which borders the turnpike-road from Newcastle up to Whalton, and goes down into a burn a quarter of a mile below it.*

1547. (*Mr. Simon.*) Suppose it were this ditch that received the sewage of the place, would it be in sufficient proximity to houses to account for cholera there?—No, that ditch is not within a hundred yards of the nearest house.*

1548. (*Chairman.*) Do you think with a south or south-west wind blowing over such a ditch, that any offensive effluvia from it might not range as far as 100 yards?—I should think not; indeed, with a south-west wind it would blow eastward of the greater part of the village; because that ditch lies to the south-east of the village rather, not to the south-west.*

1549. Then following the natural dip and slope of the strata, you would hardly get to that ditch?—I am speaking here with a doubt about the question; because I would not like to say that that is the ditch into which the drainage goes.*

1550. In fact you are not, as I understand, fully informed as to the details of where the drainage goes, or what is done with it?—I am not.*

1551. It may, for all you know to the contrary, be in some improper and offensive position?—Yes; it is scarcely possible that there can be deep cesspools, I think, as it is not the habit to make them in Northumberland.*

1554. (*Mr. Simon.*) Are there water-closets and not privies in all the houses?—There are water-closets in one or two of the houses.

1555. I took for granted, from your previous answers, that water closets was the general arrangement?—No; there are a good many houses of poor people: it is not entirely a village of villas.

1556. As respects districts where you can vouch from your personal knowledge for even the small details of sanitary arrangements, do you know of any group of cholera cases occurring, where the sanitary conditions are quite unimpeachable?—I know of no district in which I believe the sanitary regulations to be absolutely perfect.

1557. Would you not, perhaps, think this—that the prevalence is, generally speaking, in proportion to the defect of sanitary conditions?—I should be inclined to think it so, were I not met with examples like Whalton, and some other places of the same kind.

1558. But again, as a set-off against this, you have cases such as we have had mentioned in evidence here to-day, with four out of six inmates of a house dying with the stink of a grating under their noses; and a mortality on one side of a court, of one in seven of the inmates, no deaths being on the other side of the court, and this one side having a drain running under the houses, and stinking incessantly under them?—I should do so certainly; but I have unfortunately met with cases, where the inhabitants on the stinking side of the court have escaped, and where the inhabitants on the sanitary side of the court, as you may call it, have been affected.†

1559. Will you give us the name?—Broomhill, near Acklington. I have not the medical report, but merely the report of Mr. Dixon Brown, the clergyman of the village.†

* All these questions and answers are founded on a misapprehension, there being but one instance in the village of a house having any water-closet drainage, viz. the Rectory. From the subsequent testimony of the witness, it appears that "a large covered main drain runs down the central street "under the turnpike road; and into this the drainage of the houses on the north side of the road "passes. The great majority of the houses, and almost all that were affected by cholera, are on "the north side of the road. Through this main drain there is a constant runner of spring water, "both winter and summer," &c.

† These statements also the witness, on making further enquiries, recalled as incorrect.

1560. On a difficult question of this sort, would you be satisfied with a clerical opinion?—Yes, because he writes as an intelligent man, as many of the clergy are, and on the sanitary part of the affair I would take his testimony as readily as I would a medical man's.*

1561. That clerical testimony would be counter to the whole experience of your medical life, would it not?—I quite agree with you, that in most cases, where there is the greatest stench, and greatest deficiency of sanitary regulation, there is the greatest reason to apprehend disease.

1562. Would you, in your own mind, have the slightest doubt that there must be some fallacy or other in his observations?—I believe myself, that it may be accounted for by the closeness of the atmosphere, and by the contagion; because in a house which may be most perfectly drained, if the people were crowded together, let that house be a palace, and let the cholera get in there, and it would soon produce a disastrous result.*

1563. I was not at all intending to exclude crowding from the list of bad sanitary arrangements?—I consider it the worst evil of all—worse than want of drainage or anything else.

1564. Reverting to the paragraph of the report to Mr. Rawlinson, which I was reading, you infer in this passage the necessity for continued vigilance on the part of the authorities; lest this fearful disease, in the event of a second visitation, should exercise a more destructive influence upon the inhabitants of Newcastle, than it it did in 1848-9. The cholera has made a second visitation, and unfortunately has exercised a much more destructive influence upon the inhabitants of Newcastle. Do you associate that with a want of continued vigilance on the part of the authorities?—I am not able to speak positively upon that point—I am not sufficiently acquainted with the movements of the authorities in this respect. They have certainly done somewhat in repairing these places, but I should not like to give detailed evidence upon that.

1565. Have you had occasion, within a few months anterior to the last outbreak of the cholera, say in the early portion of 1853, to pass much through the poorer neighbourhoods of the town?—I have visited the poorer neighbourhoods at different times. I visited Sandgate, for instance, in 1847, during the Irish fever, and examined many of the localities there.

1566. But since that time, in the period between the Irish fever and the late outbreak of cholera?—In 1850 and 1851, when I first came to the dispensary, I visited several localities in Sandgate and Mount Pleasant, and thereabouts, and can speak from personal recollection of them.

1567. As physician to the dispensary, you then had occasion to visit the houses of the poorer classes in this town?—I had.

1568. Extensively?—Not extensively; but I have visited them, both then and also at various times, in regard to a sanitary point of view.

1569. Have you seen many there to which you would apply the terms "filthy and "unwholesome"?—Undoubtedly.

1570. Supposing that it has been lawful for the authorities of this borough, since 1846, to make rules for the cleansing of filthy and unwholesome dwellings, would it be your impression, from such dwellings as you there visited, that those rules had been made and were actively in force?—I have found many dwellings filthy and unwholesome; in August, September, October, and November, 1853, still filthy and unwholesome—depending, I believe, chiefly upon the extreme filth of the inhabitants themselves.

1571. Anterior to that period, have you seen any evidence of the enforcement of rules for cleansing filthy and unwholesome dwellings?—Do you refer to the cleansing of the apartments themselves?

1572. Yes?—I cannot say I have seen much cleansing of the apartments themselves. I have seen an improvement in Sandgate, for instance, in the surface drainage; in the flagging of the courts I have seen an improvement.

1573. A vast amount of evidence has come before us with respect to the almost general absence of privy accommodation in the poorer districts of this town. Are you acquainted with the very great defect in that respect?—I think it is extremely deficient.

1574. Are you personally cognisant of the inconveniences which are alleged to arise from that defect, in the scattering of excrements about the open ways of the town?—I have seen it to a considerable extent. I have not seen it, perhaps, to the extreme extent that others may have done, but my visits may happen to have been at a time when they have been partially cleansed.

1575. Would you consider it a great defect that additional privy accommodation has not been furnished?—I do consider it a defect, and a great one.

1576. Are you acquainted with the fact, that such privy accommodation as there is for the poorer classes in this town consists almost universally of a privy communicating with a dust-bin or ash-pit, so that there is no continuous carrying away of these matters, but that they remain on the surface of the ground, merely covered over by what you may call the watch box of the privy?—Quite so; and I have seen it in a great number of new buildings as well as old ones; and, moreover, in some of the newest buildings I have met with a privy underneath the upstairs dwelling room—a privy, not a water-closet.

* See Note to 1558-59, preceding page.

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1577. Can you say in what place you have noticed that?—I can take you to a house in Derby-street where that is very well shown. I think it is in Derby-street; it is the last row of houses going up to the town moor. It is either Derby-street or Darnell-street. It is quite out of the borough.

1578. But within the municipal boundary, are you aware of the general arrangement of privies which I have described?—The arrangement of privies is, I think, generally bad.

1579. You would look upon that as a circumstance very likely to vitiate the atmosphere of this town?—It does not benefit the atmosphere, nor the health of the individuals.

1580. Do you know anything with respect to the ash-pit accommodation in the poorer localities?—Some of it is bad.

1581. Regard being had to that, and to the absence of privy accommodation, would you quite adhere to your previous view, attributing the filthy conditions of their dwellings to the habits of dirtiness of the people?—I must attribute a good deal to that, undoubtedly. They are not, perhaps, all of them, as has been told you before, denizens—born inhabitants—of Newcastle; many of them are Irish, and the neglect of sanitary habits by them is excessive—both Irish and Scotch.

1582. It is in evidence before us that, in consequence of the absence of privy accommodation, a very large portion of the poorer population here is obliged to retain within rooms inhabited by single families the full complement of the day's excrement, till an opportunity at dark occurs for its being emptied into a cart or into the public highway?—I cannot speak so much from observation in Newcastle in that respect as in Gateshead. I paid a good deal of attention to that in making the sanitary investigation into Pipewell Gate, and I found that a very great many of the people were too lazy to remove the "kit" when the cart came round, and that they allowed it to remain there until it was too late—that they deposited it on the stairs or in the room, and very rarely took the trouble to have a cover over the kit.

1583. In your opinion, is not that an evil arising from the absence of privy accommodation?—I think it a great evil, because it makes the apartments filthy, as the people rarely open their windows.

1584. Would you think that a great portion of disease would result from that in connection with over-crowding?—Yes, the air is not only vitiated, but it is unchanged.

1585. (*Chairman.*) Supposing this should prove to be the case, that considerable districts of this town are so constructed—the houses back to back and within a few feet of one another's fronts—as to allow of no thorough ventilation, and scarcely to permit of the walls seeing the sun or feeling the wind; supposing it should also appear that great parts of those districts are so destitute of privy and ash-pit accommodation that, for many hours of each day, at all events, the inhabitants are obliged to retain fœcal matter in their rooms or at their stair-heads; and supposing it should further be shown, that in large parts of those districts the walls are damp, the houses dilapidated, the timbers rotten, and so on, would any cleanliness of habits on the part of the population avail to render such dwellings clean and wholesome?—The cleanliness of the population would, of course, be a favourable set-off against that, but I do not believe that it would counteract all the evil.

1586. You do not think that any reasonably-to-be-expected exertions on the part of the inhabitants of those districts could, under any circumstances, avail to render such dwellings fit for human habitation?—I consider such dwellings, and I can name some to be, unfit for human habitation.

1587. Do you think that any exertions on the part of the poor occupiers of those districts could render those dwellings fit for habitation?—I do not think that any exertions could make certain of them fit for human habitation. Much might be done by clean occupiers; but some are so situated that it is impossible; and I would name the dwellings in Peel-street, where it is impossible to make windows, even in the higher rooms, so as to have perfect ventilation. There is a high, dead wall against them.

(*Mr. Town Clerk.*) Peel-street is without the ancient borough.

1588. (*Chairman.*) I had understood you to attribute part of the bad sanitary condition of such districts to the filthy habits of the inhabitants, am I now to understand you to say that no cleanliness on the part of the inhabitants would render those dwellings perfectly wholesome?—Perfectly wholesome, I would not say; it would have improved them no doubt; but I look upon the filthy habits of many of the population to have been one of the great increasing causes of disease.

1589. Allusion has been made in the report which has been mentioned, to a district of that sort, which is situated between Gallowgate, Arthur's hill, and the barracks, as "presenting "in a marked degree the physical and moral evils which afflict the poor, when deprived of "all official superintendence and protection." You would have considered it, no doubt, exceedingly desirable therefore, that districts of that sort should have been under the supervision of an efficient sanitary government?—That is what we wished—that they should be included in the town, which they were not, I believe.

1590. (*Chairman to Mr. Town Clerk.*) Are not these districts within the borough?—(*Mr. Town Clerk.*) Gallowgate is, but not those between Gallowgate and the other place.

1591. (*Mr. Simon to Dr. Charlton.*) With respect to those which are within the borough, Pandon, and Sandgate, in your sanitary investigations, have you looked through those districts extensively?—I have looked through them, but of course my evidence can only be vague, compared with that of others, who have examined them day by day. The medical

officers of the districts of the union are much better fitted to give evidence upon that point.

1592. You can hardly have been in Sandgate two or three times without having formed an opinion as to its general character?—I have formed a very strong opinion as to its general character.

1593. Do you believe it to be fit for human habitation?—There are, as has been told you this morning by Mr. Newton, certain rooms looking out upon the river and raised high, which I think are very good for habitation; but, taking the average of the dwellings in Sandgate, and especially on the north side of Sandgate, that is, the side not looking to the river, I think nothing can be worse than the construction of them—it is a construction of four hundred or five hundred years ago, probably six hundred or eight hundred years ago.

1594. So that if you could convert the lower parts of all the houses into mere staircases you might leave a few garrets there as an alternative to the bombardment which has been proposed?—I think we might leave a considerable number there.

1595. Of garrets?—Not only the garrets, but the second floors. Many of these houses have been inhabited by persons of a superior class in former times; and though the access to them is bad, and the staircase narrow, yet at the same time, the rooms, when you get into them are not so very bad.

1596. Do you recollect that they are utterly without privy accommodation, and without ash-pits?—I am afraid that that is the case in a great measure.

1597. Does it not seem inseparable from the habits of a poor population that, in the absence of privies and ash-pits, the pavement should be brought into the condition in which it is reported to be, and in which indeed we have seen it?—I will not speak of the condition of the pavement, excepting what I have witnessed myself occasionally. I have seen it far worse, of course, in Edinburgh and other places; but it is very bad.

1598. But, speaking of the district generally, would you believe it to be fit for human habitation?—If you press me to give an opinion as to that district, I should say that the remodelling of it is most necessary.

1599. As the first step in which, would you pull it down?—I should recommend it to be pulled down.

1600. In Pandon, similarly, what would be your opinion?—I speak mostly of Pandon, as regards Mount Pleasant and Craig's Alley, and other parts running up from Pandon.

1601. Do you consider it to be fit for human habitation?—It is very bad; consisting of old houses, most of them. Looking on them as I do, with the eye of an antiquary, I find them to consist of three or four different erections. There has been the original old house; previously I believe only one storey high—the stones of it are at the base. A little higher than that there is another rude stone erection, probably of Elizabeth's time; later on, we have something higher than that; and they have been thus raised up. Perhaps originally some of them were not so high, and there was better ventilation; they were nearer the fields.

1602. But in their present state?—In their present state they are very bad. Many of them are placed against the bank, some are at times converted into stables; whilst others, which have been stables, appear to be sometimes converted into dwelling-houses again.

1603. In respect of a good deal of the property in St. Nicholas and St. John's parish, would you form a somewhat similar opinion about it, such as Castle Garth?—I have not visited the Castle Garth so completely as I have visited other parts; I have seen bad places there, but not so generally bad as in Sandgate, I think. There are some very bad places, however, about the Castle Garth. The very oldest part of Castle Garth itself, within the enclosure of the old castle's walls, is of no age at all—it is not two hundred years old.

1604. Are you familiar at all with the newer buildings? I suppose one must not call them new; but there are more recent buildings which have been erected within the municipal boundary: such as Shield Field?—I am not very familiar with those. I have seen them.

1605. Garth Heads?—I have seen them, but I cannot give a very good opinion upon them.

1606. So far as your knowledge extends do you look upon them as fit for the habitation of the labouring classes?—There has been a great improvement. I think if there was more drainage through the streets it would be better.

1607. An improvement in respect of their getting more air?—Yes.

1608. More widely built?—Rather more widely built. They are not so deficient in that respect as the other places.

1609. But in respect of drainage, privy accommodation, ash-pits, and the like, do they present any improvement?—I cannot speak positively upon that point, for I have not examined into the drainage.

1610. Have you formed any opinion as to the efficiency of the scavenage in this town?—I cannot speak positively upon that. I cannot form an opinion upon it. There appears to have been a good deal of activity regarding the scavenage during the last four or five years; more than there used to be.

1611. (*Chairman.*) Reverting to those districts of which you have spoken, say Sandgate as a block, Pandon as a block, and the Castle Garth and the Close as a block—supposing it were alleged, as it is in a certain fever hospital report, that the poverty, filth, and bad

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ventilation of these districts were such as to warrant the fear of an epidemic disease being generated among them without any actual importation of it, would you agree in that opinion?—I do not believe that cholera would be generated in them any more than scarlet fever.

1612. Would it be true that any other form of epidemic disease, such as typhus, might be expected to be generated there under the circumstances?—I have my doubts as to whether typhus is ever generated, excepting by contagion.

1613. You are aware, of course, of its having been, so to say, eradicated from certain public institutions, in which it used to prevail extensively?—I am.

1614. (*Mr. Simon.*) I find, in the same report to Mr. Rawlinson, that you say, "To "describe the seats of typhus and other forms of continued fever would be to enumerate "all the narrow undrained alleys in the older parts of the town, together with many equally "unhealthy, because still more neglected, districts in the suburbs?"—Yes; I certainly agree that the worst drained localities—the worst in a sanitary view—are the worst in regard of fever.

1615. "In many parts of Newcastle, fever may be said to be never absent; and a "continued residence in those unwholesome dwellings is certain to involve the prostration, "and eventually the death, of some members of the family by fever?"—I believe that is so far generally correct.

1616. "As an illustration of this statement, we may refer to the statistics of fever, in a "notorious locality, during a portion only of the epidemic of 1847, by which it appeared "that, in nine rooms in Craig's Court, tenanted, at the time of inspection, by fifty-five "inhabitants, there had been, within the three months immediately preceding our visit, no "less than fifty cases of fever and five deaths?"—That is perfectly correct. I know the locality perfectly.

1617. Are you aware that Craig's Court is still inhabited?—It is partially inhabited.

1618. Do you believe it to be fit for human habitation?—Upon my word the sooner it is pulled down the better.

1619. (*Chairman.*) Passing, then, from that subject to the question of the water shortly previously to the recent epidemic, will you favour us with your opinion as to its quality and taste?—It was as bad, if not worse, than in the year before, when the water supply failed, and it was then extremely bad.

1620. When you say "bad," do you mean to the eye, or anything more?—It was very muddy to the eye. I think about the middle of July it began to be bad, and it got worse and worse as the supply continued to fail; and at last I was obliged to give up drinking it, for I found a disagreeable saltish taste about it, as if partly mixed with salt water.

1621. (*Mr. Simon.*) Should you say it was brackish?—I cannot say; I have not drunk brackish water.

1622. (*Chairman.*) Did you smell anything offensive about it?—No.

1623. Did you ever feel called upon to dissuade your patients from the use of it?—No; never.

1624. (*Mr. Simon.*) You did not analyze the water?—I did not.

1625. Were you able to form any opinion as to the source of this peculiar quality in it?—I should think it arose partly from the deficient supply of the reservoirs themselves, with which I am pretty well acquainted, and partly from the Tyne itself. The Tyne itself, however, was low at that period.

1626. What do you think may have been the nature of the impurity which you tasted in the water?—A good deal of it was what we should call muddy water. The brackish taste would not probably be produced by the mud, unless it had met with some saline spring in sufficient quantity, or some deposit or bed of some kind, to produce it; a bed of decomposing sulphuret of iron, for instance; but I know of nothing of that kind.

1627. (*Chairman.*) Have you anything to say about the gas?—The gas was not good, I must say; it was very injurious to books, but I believe that all gases are.

1628. You have no opinion to offer as to whether it did or did not affect prejudicially the health of any class of inhabitants, such as shopkeepers?—I have no opinion to offer, excepting that in a room where a large quantity of air is consumed by a number of gas-burners, whether the gas is good or bad, if that room is much crowded besides, it will have a bad effect.

1629. And where the gas is bad, it will be worse?—And where the gas is bad, it is, of course, worse still.

1630. (*Mr. Simon.*) Is not there a great carelessness in the consumers of gas, in neglecting to make provision for the passing off of the products of combustion?—Very great indeed; they are extremely deficient in that respect. In the ventilation of gas in houses we are perfectly in our infancy.

1631. Were you able to form any opinion with reference to the fact that in the garrison there was a very great prevalence of diarrhœa, and that none of that diarrhœa passed on to cholera?—I should imagine that it depended upon two or three points. In the first place, soldiers are under strict regimen, well taken care of, and every case of diarrhœa that occurs is promptly and immediately attended to; and hence the great value of the house-to-house visitation. The barracks are situated high, and, consequently, whatever little air might be moving would be rather in their favour. It is the highest part of the town almost.

1632. You are aware that, on much the same level with it, is a place called Spittal-tongues?—I am.

1633. And that cholera prevailed very fiercely in that locality?—It did.

1634. What do you think may have made the difference between the two?—In the first place, the houses themselves are not so bad at Spittal-tongues; for I went up to examine them. I was rather surprised to find them better than I had expected. It is difficult, indeed, to account for it. The first case at Spittal-tongues appeared to have been imported from Gateshead. I have the whole details of the case, and have been at the house where it took place. I have no doubt Mr. Rayne can give you more information upon the subject than I can. If the inhabitants opened their windows, there would be a thorough ventilation in Spittal-tongues; for there is a back window, and it opens on to an open moor of a thousand acres. With regard to drainage in Spittal-tongues, the houses themselves probably are not drained, but there is a very strong runner of water from the pits, which runs down past Eldon-street, and that runner is quite sufficient to turn a mill.

1635. (*Chairman.*) Supposing it should appear that, among the 304 infantry privates in the barracks there were but 252 cases of diarrhœa, or not quite one to a man; and that, among the 82 cavalry troopers, there were 168 cases, or rather more than two to a man; and supposing it should be alleged that this was an instance of the aggravation of the tendency to diarrhœa by stable effluvia, how would you regard such an allegation?—I should first have to inquire into the condition of the cavalry barracks themselves, as regards the soldiers; that is, the sleeping-rooms of the soldiers, their state of accommodation and discipline, and many other matters with which I am not acquainted. I may mention that I did not find that grooms and stable-keepers were peculiarly liable to the disease in Newcastle, but I found that one other class of people that was very liable—the drivers of hearses, and men who were employed about the sick were very liable to it.

1636. Finally, what opinion have you to offer to us with reference to the conduct of the officers of the Board of Health who were here during the time of the epidemic?—I did not come personally in contact with Mr. Grainger. He called upon me. I returned his call, and endeavoured to see him, but was unable to do so. I called two or three times. Dr. Gavin I had known formerly, and not only from my previous knowledge of him, but from what I have seen this time, I am of opinion that his behaviour has been exactly what I should have wished; that he exhibited great energy; and that the measures which he adopted were beneficial.

1637. Then am I to understand you to say that, with reference to Mr. Grainger's proceedings, you had no such cognizance of them as would enable you to give an opinion?—The personal cognizance which I have had of Mr. Grainger's proceedings is not what I have had of Dr. Gavin's proceedings; but from what I have seen of Mr. Grainger's proceedings—the establishing of a house of refuge, for instance—which Mr. Grainger started with, I regard as one of the most valuable things that can possibly be adopted in the case of an epidemic.

1638. (*Mr. Simon.*) Are you cognizant of Mr. Grainger's proceedings generally during the time he was here?—I gathered them from the newspapers, and also from the reports of those parties who came in contact with him.

1639. Were they in your judgment suitable for the emergency?—I think so.

1640. So far as your knowledge extends, if any inculpatory allegation were made against either of these gentlemen, tending to charge them with inefficiency, or with indolence or indifference, or with any fault whatever in relation to the performance of their duties here, would you sanction any charge of that kind?—I certainly would not.

1641. You have no belief that any such charge is merited?—I do not believe that any such charge was merited.

1642. (*Chairman.*) Is there any other point on which you would like to offer evidence?—I should state that since the cholera I have been engaged with Dr. Embleton in examining some of the houses, and shutting them up, in regard of their being unfit for human habitation. I should be glad to answer any question upon that subject.

1643. Since the epidemic?—And during the epidemic, while it was still prevailing, I examined some; but chiefly since it has almost entirely subsided.

1644. (*Mr. Simon.*) How many houses have you closed?—Unless I refer to my book I cannot say; the inspector has the principal list. Our duty was to examine and give an opinion as to their fitness for human habitation.

1645. On what principle have you proceeded in determining?—We selected generally the worst houses, if we could get them. There were a great many, of which it was difficult to say they were not the worst, but it was impossible to shut up all, as you would have caused the still greater evil of overcrowding the houses left.

1646. Are you aware that any of the houses that were closed during the time of the epidemic have since then passed into occupation again?—Some of them have, after having been carefully examined, and ventilation got into them by opening back windows; the worst of them are still kept closed.

1647. Are you aware whether any houses unfit for human habitation had been closed before the period of the epidemic?—I believe the power of closing the houses did not come into operation till August; the cholera appeared that same month.

1648. (*Mr. Town Clerk.*) You know, of course, Edinburgh pretty well?—I do.

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1649. What would you say of the sanitary condition of the old town of Edinburgh as compared with that of the town of Newcastle?—I only speak of the sanitary condition of the old town of Edinburgh when I was a student there, and working in the Wynds and other places from the year 1832 to about the year 1836.

1650. You have not visited it lately?—No; excepting occasionally when I have gone to take a friend to see two or three of the worst localities, which did not appear much improved from what they were before.

1651. Generally speaking, how would you compare the two?—Edinburgh is decidedly worse; the houses are higher; the people are so remarkably dirty in their habits; and the fearful habit of spirit drinking is ten times worse than it is in this country; it is bad enough here.

1652. (*Chairman.*) When you say that Edinburgh is worse, do you mean that the rates of mortality in Edinburgh are higher than here?—I will not venture to say that, because perhaps the proportion of the cases of poor to rich is not so great; but I am unacquainted with the mortality rates of Edinburgh.

1653. (*Mr. Simon.*) Are you aware whether in Edinburgh they have very full powers for sanitary improvement?—I cannot speak upon that; I do not know.

1654. (*Mr. Town Clerk.*) Can you give any reason for the excess of mortality in Newcastle which the returns of the Registrar General present?—No; I have not examined them sufficiently, nor can I give any reason for it.

1655. (*Mr. Simon.*) Do we quite understand you, that a high mortality seems to you unaccountable in a town presenting the sanitary features of Newcastle?—A large town like this, with many people in pretty full work, and at the same time a very considerable habit of spirit drinking among the inhabitants, no doubt increases the amount of mortality.

1656. If the rates of the Registrar General, given for a series of years—fifteen years—show an annual death rate of twenty-eight, or more than twenty-eight, in the thousand, should you consider that quite independent of the physical features of the place and the sanitary conditions to which you have already adverted?—No, I should not consider it positively independent.

1657. Should you consider that the high mortality mainly depends upon circumstances of that sort?—I consider that a great deal of the high mortality depends upon over-crowding; and that where families are crowded in one room the deaths are greater, the ventilation being bad.

1658. You would put that the first in your list of evils?—Yes.

1659. You would probably, in your list of evils, give a very important place to the almost entire absence of house drainage?—Decidedly.

1660. It would strike you that, as the consequence of that almost entire want of house drainage, there would be, in Newcastle, the results of the vaporization of an immense quantity of ordure?—Yes.

1661. You would consider that detrimental to health?—That is undoubtedly detrimental to health, though I do not consider it is so detrimental as some people have imagined. I do not consider that every bad smell is necessarily an unhealthy one, though certainly the general rule is in its favour.

1662. (*Mr. Town Clerk.*) Is Edinburgh much superior to Newcastle in its smells?—I think the smells are worse; but the privy accommodation is better in some respects. There is a large public privy.

1663. (*Mr. Bateman.*) How is Edinburgh with reference to over-crowding?—It was very bad. I cannot say what it is now.

1664. Is it, in your opinion, worse or better than Newcastle with respect to that?—I can only speak to twenty years ago; then it was very bad.

1665. (*Mr. Simon.*) Are you aware of the geology of this town—that it stands upon clay, and that the clay in some places comes very near the surface?—The geology is rather peculiar; there are certain furrows running along the banks of the river which appear to have been, at a subsequent period, filled in with clay, and these contain water in a very extraordinary degree; so that we may have a succession of terraces or depressions on the bank of the river, each of which contains its own separate supply of water.

1666. Into which are sunk the foundations of the houses?—I doubt, in an old town like this, whether they go quite so deep. We merely get down to the surface of the clay; at least, in some cases we do.

1667. That being the condition of the district, you would think, probably, that subsoil drainage would be indispensable for its healthiness?—Yes, it is admirably situated for drainage.

1668. And you would consider drainage essential for its healthiness?—Of the greatest value.

1669. House drainage being almost entirely absent, excrement being diffused on the pavements, and over-crowding and defective ventilation prevailing very extensively, we may ask you, as a physician, would you not be very much surprised if the death-rate were low?—Yes; but the whole of what you bring against the town does not prevail over a good portion of the town, it is only in a few localities.

1670. Does not there prevail over the town almost universally the absence of arrangements for carrying off excrement?—I cannot speak positively to that, not knowing the exact state of the drainage; but the town surveyor could show you that there is considerable drainage. I believe it to be the case that very few houses drain into the sewers.

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1671. We need hardly tell you, that the mere fact of having an arcade under the street, a nominal sewer, does not do much for the health of the place. The object of a sewer, of course, is only fulfilled when the houses run off their refuse into it?—Certainly.

1672. You do not doubt that there exist throughout this town, almost universally, means for the diffusion of such an atmosphere as I have spoken of—an evaporation of ordure?—I cannot say, from my own observation, that I have seen such a large amount of ordure in the streets, excepting the very lowest ones.

1673. In the houses where there are privies, those privies are not drained, I believe?—Many of them, certainly not.

1674. Do not they evaporate?—They must do so to a certain extent. They fall into the ash-pit, and there mix with the ashes.

1675. They still evaporate?—There must be evaporation from them.

1676. We learn that in the town the water company supplies with water 1,166 water-closets. Let us suppose that all those are in different houses, would not that be a small proportion of the houses of Newcastle to have the means of getting rid of their refuse by drains?—Yes, it is a small proportion; we want many more than that.

1677. And if almost all the rest of the houses in Newcastle contain excrements round about them, does not that make an almost continuous evaporation of ordure over the town?—It must, to a certain extent.

1678. Varying in degrees, no doubt; in the lower levels evaporating from the pavement, but in the other parts of the town evaporating from such privies as there are. Does not that make up a tolerable continuity?—It makes up a very tolerable contribution to it.

1679. Can you put your finger on the map upon any acre of Newcastle that does not contribute very appreciably to that evaporation?—I should say that the better parts of the town do not contribute very materially to it. Of course, as in London, there are good localities, with bad localities not far from them. In the district in which I live, Eldon square, there are, of course, water closets, and several of them.

1680. And privies also?—There are privies in the square; but some of them wash into the water-closets.

1681. Are they trapped?—I think most of them are. Besides, there are many water-closets, I believe, which do not belong to the water company.

1682. (*Mr. Town Clerk.*) Supplied by rain?—Yes.

1683. In any town in the kingdom could you put your finger on an immaculate acre?—Not in one town in existence.

1684. (*Mr. Simon.*) Do you think that there are many towns in the country where you could put your finger on such a place as Sandgate?—I think South Shields and North Shields, and some parts of Sunderland, will run a pretty good race with it, but scarcely so perfect.

1685. (*Chairman.*) Did you ever hear of a district containing 5,000 inhabitants, in which 4,500 had no resource but to throw their excrement about the pavements, unless they went to one single public privy?—I think both in Glasgow and Edinburgh we could find such; the privy accommodation is not good in Edinburgh.

1686. (*Mr. Simon.*) Do you doubt that, if that be so in Glasgow and in Edinburgh, it is a flagrant disgrace to those cities?—I think it very much to be regretted.

1687. Of course we attach a good deal of importance to your evidence on the point which is under discussion, from your position here as a physician, performing very important business in this town; and your opinion, of course, on this subject ought to have weight both with us and with those who hear you. We should not like to leave the slightest doubt on your interpretation of these death rates. When you consider the non-drainage of Newcastle—when you consider the diffusion of filth in Newcastle—when you consider the crowding in Newcastle—when you consider the absence of ventilation in great parts of Newcastle—have you the slightest doubt that those circumstances are the chief influences in determining the high mortality?—Perhaps the mortality might be compared with that of other large towns which occur to me, Bristol and Norwich.

1688. Do you doubt that, in this particular case, the circumstances to which I advert are the causes of the high mortality?—They will certainly tend considerably to it, there is no doubt of it.

1689. Would you say that they must be the chief causes of that high mortality?—Overcrowding, want of ventilation, and neglect of sanitary arrangements are, unquestionably, great causes of disease, and, consequently, of death.

1690. (*Chairman.*) It appears from a pamphlet, which is pretty good authority, that the death rate of Norwich is twenty-six, as compared with twenty-eight in Newcastle?—May I ask for Bristol?

(*Chairman.*) I do not see that that is given here.

1691. (*Mr. Simon.*) There are considerable rural populations, some twenty or thirty miles from here, where the death rate is fourteen in the thousand for a series of years. You would not think that they lived monstrously long, or that it was a faulty longevity there?—Are the accidents taken in there? because we lose a great number in our pit population by accidents.

1692. A large proportion?—Yes.—It increases the mortality, I believe, considerably. The accidents from machinery are always a very great element in those great works.

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1693. (*Mr. Town Clerk.*) There are three large lead factories not very wholesome?—Those also are exceedingly unwholesome.

1694. (*Mr. Simon.*) Are they within the town?—All within.

1695. (*Mr. Town Clerk.*) The smallest of them was proved to have 500 workmen?—Yes.

1696. One word about Whalton. What was the number of fatal cases of cholera in the village of Whalton?—I think the fatal cases were either ten or eleven.

1697. In a village population?—Yes.

1698. Was any other village of Northumberland struck in the same way?—One or two, but not so much so. The hamlet of Broomhaugh, near Corbridge—Hexham is not a village. There is Broomhill, near Acklington, and there is Burradon.

1699. (*Mr. Simon.*) You gave the population of Whalton as 350?—Of the township.

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1700. (*Mr. Town Clerk.*) But the village is only a part?—Yes. Judging myself, I should say there were only 250 inhabitants in the place. Cases of choleraic diarrhœa were very numerous indeed.

1701. As I understand you, no village in the neighbourhood of Whalton was so struck with cholera?- No.

1702. Broomhaugh is at a great distance?—Yes; it lies on the Tyne. It was brought by the carrier to Broomhaugh.

1703. Is that a great distance?—Yes. The disease was brought by the carrier to Broomhaugh also.

1704. Are the other villages in the county at all superior as to drainage to Whalton?—I should say they are inferior.

1705. (*Mr. Simon.*) Do you know them?—I know them, because I have visited them.

1706. As to the details of their drainage?—Not the details of their drainage; but I speak of the general features of the place. Many of them lie low, and consequently the drainage would not be so complete; and many of them are very old and tumble-down sort of villages.

1707. You are, of course, aware that in some places the drainage may be very defective indeed?—It may. I believe there was a statement made with regard to Wrekenton on Saturday. The lowest part of Wrekenton had no cholera in it. The cholera only occurred on the east side of the street leading up to Mr. Davis, the doctor's house, except one case, a relative of Gowland, a man who died at the asylum; and that occurred, I think, at the Seven Stars, and he had been in attendance upon Gowland.

1708. (*Chairman.*) You are not familiar yourself with the actual situation of that part of Wrekenton?—Yes; I was there the other day.

1709. Are you aware that the place, where the great mortality in Wrekenton prevailed, is a kind of shallow basin at a great height, having no natural drainage whatever?—I cannot figure to myself that it is a shallow basin. I may be mistaken. The engineer who examined it may of course have a better eye than myself.

1710. (*Mr. Simon.*) Have you happened to read a description, which was published on official authority, of the filth that surrounded the inhabitants who suffered from cholera at Wrekenton?—I have no doubt of their being very filthy indeed.

1711. Of course you would hardly look for great advantage in a high level, if all the filth that can possibly belong to a low level is left up hill for want of drainage?—Certainly not.

1712. (*Mr. Town Clerk.*) Is it more filthy than any other of the pit villages, in your opinion?—No; I would not venture to say that it is. I cannot speak of the inspection of every house.

1713. The character of pit villages is very similar?—Very similar in general.

1714. You spoke of the state of the atmosphere at the time of the outbreak of cholera, without, perhaps, describing it so fully as some of us would have liked you to have done. Can you describe it?—It was extremely dark—extremely dense and heavy, though the barometer was not particularly low. The temperature, I think, if I am not mistaken, ranged betwen 60 and 70, or between 55 and 65, which we can easily ascertain by reference to any of the local papers. There was no wind at all, and the swarms of the small flies augmented day by day, so that it was impossible to ride with comfort along the lanes. If you opened your mouth it was filled with them. The same prevailed in other localities which were not visited by cholera. The cholera cloud extended to other places which escaped cholera; but at Whalton it was as bad as it was in Newcastle—certainly not worse.

1715. (*Chairman.*) Did this heavy atmosphere prevail the same in the higher parts of the town where the mortality was light, as in those worst districts of the town where we have heard that four out of six people died in one court, seven out of twenty in another, and so on?—I was, at the time when this heavy atmosphere prevailed, attending with Mr. Hood in the Western-hill distict. I was helping him in his private practice in cholera; and it was impossible to ventilate the rooms, for the atmosphere was equally bad, I think, at the upper part of the town as it was at the lower; it was dreadful; nothing could exceed it.

1716. That is to say, the same condition of atmosphere prevailed throughout?—Yes.

1717. Therefore the condition of the atmosphere will hardly be able to account for the difference of intensity with which the epidemic scourged the different localities?- No; but it will account for the increase of intensity in the upper districts, I imagine.

1718. For the increase everywhere?—Yes.

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1719. But not in one more than in another?—Not in one, perhaps, more than in another; the upper districts were very severely visited.

1720. (*Mr. Bateman.*) And you attribute that to the state of the atmosphere very much?—I attribute it to the state of the atmosphere concentrating the virulence of the disease. Had we had a high wind I believe we should have had very little cholera in Newcastle.

1721. (*Mr. Town Clerk.*) You recollect the change when the wind came considerably from the westward?—As far as I remember there was an improvement.

HECTOR GAVIN, ESQ., M.D., sworn.

Hector Gavin, Esq M.D.

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1722. (*Chairman.*) You are a superintending inspector of the Board of Health in the medical department?—I am.

1723. In such capacity you saw the outbreak of cholera in 1849 in London, and specially attended some districts there, did you not?—I did. Most of the districts of the metropolis.

1724. Since that period were you sent to the West Indies to repress the ravages of cholera there?—I was there, as medical inspector of the colonies, for two years and a half.

1725. And you are now at Glasgow?—I am at Glasgow, superintending, as medical inspector, the arrangements in reference to the epidemic now prevailing there.

1726. On what day did you first arrive here?—On Saturday, the 17th September 1853.

1727. And you stayed here till when?—Till the 30th October, when I received a telegraphic order to go off to Dundee.

1728. Did you stay here till the close of the epidemic?—Yes.

1729. During that time were you, as superintendent of the house-to-house visitation system, in constant communication with a great number of medical visitors, assistants, and so on?—Every day.

1730. Did you receive from them daily reports bearing on the state of their districts?—Every evening I met them and received accounts as to the state of their districts.

1731. Did you yourself at all go round about these districts?—I visited the districts to ascertain what the visitors were doing, and also to ascertain the amount of disease in the various localities, in order to apportion the amount of the visitation which might be required in the several districts.

1732. (*Mr. Simon.*) Have you copies of those reports?—I had, day by day, during the whole period of the epidemic, statements of each visitor's work, with summaries showing the total amount of visitation performed by all the visitors, and by each visitor, with the name, age, sex, and locality of the patient, the kind of disease that he laboured under, and the number of cases that passed on, under each visitor's treatment, from the first to the second, or from the second to the third stage of the disease.

1733. Had you final reports from them, giving the total result in the districts?—I had.

1734. Would you be willing to put those in evidence?—I shall be very glad to place them in evidence. I have them here.

1735. (*Chairman.*) Did you in this manner form a confident opinion as to the state of Newcastle generally?—A very confident opinion.

1736. Did you become cognizant of the fact that, whatever number of sewers might exist, there was next to no house drainage?—Exactly; there was no house-drainage.

1737. That the land drainage, the subsoil and rain-fall drainage was very imperfect?—Very imperfect.

1738. That the accommodation in the way of privies and middens was also very defective?—Exceedingly.

1739. That the scavenage might have been better?—The scavenage was greatly neglected, and in some cases exceedingly difficult, if not almost impracticable.

1740. Owing to what?—The construction of the properties.

1741. And as to the state of the paving?—Defective to an extreme in many places.

1742. Did you also visit the interior of the tenements, so as to ascertain whether there was over-crowding?—I on many occasions acted almost as a house-to-house visitor myself, having gone round the various localities and inspected them myself, and gone into the houses from time to time, and ascertained the number of persons there and the sanitary condition of the various premises.

1743. Your occupation as superintending inspector takes you habitually to the worst infected towns in the country, where the ravages of epidemics are the most serious, I believe?—Yes; I have had the superintendence of a considerable number of places where cholera has broken out during the present epidemic, as well as of places abroad.

1744. In those towns and cities you have seen a good many unfavourable specimens, I suppose, of town-conditions?—Very shocking, discreditable, and horrible conditions of things.

1745. Have you seen in those places a destitution in the way of privy accommodation which was equal to what you have seen here?—Not quite.

1746. Have you seen the surface-drainage as deficient as here?—Yes.

1747. Have you seen paving and scavenging as indifferent?—Yes.

1748. But taking all these things together, did you ever in the course of your experience, see any district in any town throughout the whole kingdom, in which, in the totality of sanitary evils, the destitution of the place was so appalling as here?—Sanitary evils being of a variety of kinds, some exist in greater intensity in some places than in

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others; but, taking all things together, there are certain districts of Newcastle which seem to me to exhibit a larger number of these evils than any other place with which I am acquainted.

1749. You would not deny that, in any one or other individual point, some other town might be found to present features as unfavourable?—I am quite sure that many towns present features in themselves more unfavourable in special aspects; but when we take into consideration—not only the amount of excrementitious matter lying on the surface and the want of surface and house drainage, but also the structural condition of the property, and the natural position of it—the geographical position I mean—all these things being taken together with the want of ventilation, make a sum of evil which it is difficult, I think, to find elsewhere.

1750. Would those remarks of yours apply to Sandgate particularly?—Peculiarly.

1751. It has been stated here, that Pandon is worse than Sandgate—is that your opinion?—It is very difficult to say whether it is worse. It is very bad. I do not think it is so bad—inasmuch as there are not the same number of narrow alleys in it excluding ventilation.

1752. In that one respect you think it is better?—I think it is.

1753. Is the Castle Garth and Close district any better?—They are very bad districts, but probably better in that respect, that they have considerably wider alleys, or streets as it were, which intersect them, so as to give a larger amount of ventilation.

1754. In other respects would you think them as bad?—Nearly.

1755. We have had evidence given to us, to the effect that the condition of Sandgate was hopeless, and that to improve it effectually you must pull it down and re-build it. What opinion do you entertain upon that point?—I believe that it would be a matter of great economy to the Board of Guardians, and to the corporation to destroy it utterly, and to rase it from the ground. I believe that it is a moral duty, which attaches to the parties in charge of the lives of the humbler classes, that they should destroy conditions of things which are inevitable and necessary causes of disease and premature death; and consequently of suffering, and widowhood, and orphanage, and I would say of crime.

1756. Supposing you wanted to put Pandon into a proper condition, would you proceed much in the same way with reference to it?—There are an immense majority of the houses in these districts unfit for human habitation, and which do not appear to me to be capable of being rendered fit for human habitation, except by structural arrangements, commencing with the razure of the property.

1757. Would those remarks of yours also apply to the third district I have mentioned, Castle Garth and the Close?—I am not so well acquainted with those.

1758. At all events there are considerable districts in this town, which you think utterly incapable of being rendered fit for human habitation, without being pulled down and rebuilt?—Surely I do.

1759. (*Mr. Simon.*) At the time of your arrival, was the epidemic at its height?—It did not appear to be at its height at the time when I arrived; because the facts with regard to the amount of disease were imperfectly known. It really was at its height, but it was not supposed to be so at that time. I arrived here on the 17th. The highest number of deaths occurring on any one day was on the 16th; the number being 114; but it was not till a considerable time after that, that we really supposed that we had arrived at the acme of the disease, inasmuch as the deaths being registered some days, and often times several days, after they had actually occurred, the mortality was made to appear, on the several days on which the registration was taken, to be larger than the mortality really was, and less as referring to a previous period.

1760. (*The Clerk to the Board of Guardians.*) It was necessarily so?—Clearly, it is one of the conditions necessarily arising from the operation of the Registration Act.

(*The Witness then handed in some reports by him to the General Board of Health, from which the following tables are extracted.*)

TABLE I.

Showing the NUMBER of DEATHS from CHOLERA in the different classes of life in the several Districts of NEWCASTLE-UPON-TYNE, 1853.

	Gentry.	Tradesmen.	Artificers and Labourers.	Total.
All Saints, West of Ouseburn	0	56	362	418
St. Nicholas and St. John	2	69	267	338
St. Andrews	17	89	141	247
Westgate and Elswick	17	96	234	347
All Saints, East of Ouseburn	1	6	170	177
	37	316	1,174	1,527

Proportion per cent :—

Gentry	2·42
Tradesmen	20·69
Artificers and Labourers	76·82
	99·93

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TABLE II.

SHOWING the day by day RETURN of DEATHS in the Registration District of Newcastle from 31st of August to 4th November 1853.

Date. 1853.	Gentry.	Tradesmen.	Artizans.	Labourers.	Paupers.	Prisoners.	Total.
September 1	„	2	4	„	„	„	6
„ 2	„	„	2	„	„	„	2
„ 3	„	1	4	„	„	„	5
„ 4	„	3	1	2	„	„	6
„ 5	„	2	2	3	„	„	7
„ 6	„	2	2	„	1	„	5
„ 7	1	„	1	1	„	„	3
„ 8	„	4	7	4	„	1	16
„ 9	„	5	8	5	„	„	19
„ S. 10	1	„	9	9	„	„	19
„ S. 11	„	8	10	12	1	„	31
„ M. 12	„	15	12	10	1	„	38
„ T. 13	2	17	26	13	1	„	59
„ W. 14	1	21	40	23	3	1	89
„ T. 15	4	27	53	21	1	„	106
„ F. 16	3	26	56	27	2	„	114
„ S. 17	2	21	42	34	4	„	103
„ S. 18	6	17	47	30	2	„	102
„ M. 19	2	24	47	35	2	„	110
„ T. 20	2	21	39	21	2	„	85
„ W. 21	3	8	31	22	3	„	67
„ T. 22	2	15	38	26	„	„	81
„ F. 23	2	14	30	13	1	„	60
„ 24	2	12	29	11	2	„	56
„ 25	„	14	29	13	1	„	60
„ 26	„	5	21	8	„	„	34
„ 27	1	4	18	11	„	„	34
„ 28	1	3	13	9	„	„	26
„ 29	„	6	4	8	„	„	18
„ 30	„	2	7	3	„	„	12
October 1	„	3	9	2	„	„	14
„ 2	1	„	5	7	2	„	15
„ 3	„	3	9	3	1	„	16
„ 4	„	„	3	6	„	„	9
„ 5	„	2	2	10	„	„	14
„ 6	„	1	4	5	„	„	10
„ 7	„	„	5	1	1	„	7
„ 8	„	„	5	1	2	„	8
„ 9	„	„	1	1	„	„	2
„ 10	„	„	2	„	„	„	2
„ 11	„	„	1	1	„	„	2
„ 12	„	1	1	3	1	„	6
„ 13	„	1	„	4	„	„	5
„ 14	1	1	2	1	„	„	5
„ 15	„	„	3	1	„	„	4
„ 16	„	1	3	„	„	„	4
„ 17	„	„	2	5	1	„	8
„ 18	„	„	2	2	„	„	4
„ 19	„	1	„	2	„	„	3
„ 20	„	„	„	1	„	„	1
„ 21	„	1	„	1	1	„	3
„ 22	„	„	1	„	1	„	2
„ 23	„	„	1	1	„	„	2
„ 24	„	1	2	„	„	„	3
„ 25	„	„	1	1	„	„	2
„ 26	„	„	„	„	„	„	„
„ 27	„	„	„	„	„	„	„
„ 28	„	1	„	1	„	„	2
„ 29	„	„	1	„	„	„	1
„ 31	„	„	1	„	„	„	1
November 2	„	„	1	„	„	„	1
„ 4	„	„	1	„	„	„	1
	37	316	701	434	37	2	1,527

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1761. (*Mr. Simon.*) You state that such knowledge as you acquired at the time led you to consider many places unfit for human habitation?—Very many.

1762. Did you find that any steps had been taken before your arrival to close those houses?—Not any.

1763. Did you adopt any proceedings, when that came to your knowledge?—On the Saturday, being the day of my arrival, I was in communication with a gentleman who had had the charge of passing a Bill through Parliament for the improvement of the town of Newcastle; and I discovered from his conversation that in that Act there was a clause by which power was given to shut up houses unfit for human habitation. That power seemed to me so exceedingly desirable, and so important to make use of at the time, that I made arrangements for, on the Monday, the next legal day, taking steps for shutting up some houses unfit for human habitation, in order that a commencement might be made in what I considered a most important sanitary service. On the Monday, these steps were taken; the necessary certificates were given, and on these steps the first house in Newcastle which was returned unfit for human habitation was shut up.

1764. Who signed that certificate?—My colleague, Mr. Grainger, and myself.

1765. (*Mr. Town Clerk.*) Is it Mr. Thomas Gray to whom you allude?—I do not exactly know the gentleman's christian name.

1766. Was he a Mr. Gray?—Mr. Gray.

1767. (*Mr. Simon.*) As far as you could gather from the reports of your visitors, should you have inferred that the Nuisances Removal Act was in active operation at the time?—Most unquestionably not.

1768. Not on the 17th?—Certainly not; it never had been to my knowledge.

1769. (*Chairman.*) You mean by the town council?—Either by the board of guardians upon whom that duty properly devolved, or by the town council who subsequently adopted it, I believe, on the 19th.

1770. Do we rightly understand you to say that you are not aware that the board of guardians ever put it in force?—I mean by putting it in force, putting it in force in that effective and complete manner in which I consider the Nuisances Removal Act ought to be put in force.

1771. (*Mr. Simon.*) Did you observe any improvement of activity after the 22d of September?—Unquestionably the authorities under the influence of pressure from without were exceedingly industrious, and did a great many things which were highly creditable to them.

1772. (*Chairman.*) I find it stated on the minutes of the committee of the 22d September 1853, that notice was to be given by advertisement to the inhabitants of Newcastle, that the town council would put in force the Nuisances Removal Act. Do you believe that to be correct?—I am aware of those circumstances.

1773. (*Mr. Simon.*) It having previously been enforced by the board of guardians?—By the board of guardians. It was found that the board of guardians had not the machinery and complete organisation necessary at the time when so many nuisances prevailed, and so many active measures were required, to abate them with that rapidity which was essential. The town council had the machinery and were willing to take upon themselves the duties, and therefore the board of guardians resigned to them the performance of that trust.

1774. During any portion of your superintendence here did you find the Nuisances Removal Act worked in a manner proportionate to the emergency—worked thoroughly?—I have already stated that I do not think that that Act has ever been put into operation in the manner in which I conceive the Nuisances Removal Act ought to be put into operation in such towns as Newcastle for the welfare of the public.

1775. Were you cognizant during your stay here of the existence of any inspectors of lodging-houses?—Yes. Two persons, police officers, were appointed for that special purpose. I accompanied these two police officers one night—I forget the exact date—from about 10 in the evening till early in the morning, through a vast number of the worst-conditioned lodging-houses in the worst-conditioned districts; but previously, that is till a period shortly antecedent to my arrival, the Lodging-houses Acts had not been put into operation.

1776. Are you aware at what time it had come into operation; was it during the epidemic?—It was after Mr. Grainger's arrival, and, I believe, at his suggestion.

1777. (*Chairman.*) It had not been put into operation on the 14th of September. That appears in Mr. Grainger's reports of that day and of the 12th September to the Board of Health?—I think it was about the 14th, or shortly after.

1778. (*Mr. Simon.*) Were the returns that your visitors made of nuisances brought mediately under the notice of the authorities?—The visitors handed in their returns of nuisances to me at the same time that they handed in their reports of their daily visitation.

1779. On separate forms?—On separate schedules, and these returns were handed by me to the clerk of the board of guardians, who properly attended to them, that is to say,

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when the charge of the suppression of nuisances was in the board of guardians; and I take it that that gentleman subsequently handed them to the inspectors of nuisances appointed by the sanitary committee of the town council.

1780. Substantially, when the matter was dealt with by the corporation, were they handed to the corporate officers?—They were handed through Mr. Forster to the corporate officers.

1781. (*Mr. Simon to Mr. Town Clerk.*) Is there any record of that?—(*Mr. Town Clerk.*) The inspector of nuisances may have such a record, but I am not aware.

1782. (*Mr. Simon.*) There is no book in which they are registered?—(*Mr. Town Clerk.*) No.

(*Dr. Gavin.*) I may state that it was an early part of my service to propose to the sanitary committee of the town council that a record should be kept, in which all nuisances that were reported should be entered, the date of the report, the date of the inspection, the date of the proceedings that were taken for the abatement of the nuisances, and the results. I beg to state also that the visitors complained frequently to me, very bitterly, that it was of no use making reports of nuisances, because after having again and again reported nuisances, the nuisances were found by them *statu quo*.

1783. (*Mr. Town Clerk.*) To what period of time do you refer?—About the third week after my arrival here. It is just and right that it should be understood that there had been a caution given to the local authorities not to attempt to abate nuisances where a *large* amount of filth would require to be disturbed; and it had been very wisely suggested by my colleague, Mr. Lee, that all such large nuisances, in place of being removed, should be abated temporarily by the placing above them of an amount of common earth, sufficient to absorb any deleterious gases which might arise from them, and so render them temporarily innocuous.

1784. You would perhaps add that Mr. Lee's suggestion was promptly attended to?—Certainly.

1785. (*Chairman*). Were these the class of nuisances alluded to by your medical visitors when they complained that they could not get them abated?—No; they were nuisances of a minor description.

1786. (*Mr. Simon.*) Did improvement take place during your stay here in the scavenage, particularly of courts and alleys?—The corporation were exceedingly desirous of doing all they could in the way of cleansing certain streets, lanes, courts, and alleys by the use of the hose and jet; and there was considerable discussion, I recollect, as to the means by which they would be enabled to obtain a supply of water, sufficient for the purpose of cleansing certain parts of the town at the time, the difficulty arising from the fact that they were unable to obtain from the Whittle Dean Water Company a supply of water sufficient to wash the streets. The question then arose as to whether they would not be able to make use of a public fire-engine so as to bring water up from the river to cleanse the streets. I am not aware whether that suggestion was ever subsequently put into operation; but I believe, had the corporation had the power of cleansing the streets to a larger extent by a supply of water, they would have proceeded more actively than they did in the cleansing of the streets.

1787. Did it come within your knowledge that there were certain cholera deaths in the gaol, on which coroner's inquests were held, and which were returned by the jury as having occurred through the visitation of God?—I am aware that such deaths took place; and I think it very important that some inquiry should be made as to why so much mortality happened in the gaol; because it appears to me, from all the information that I could gather, given to me by the talented and amiable officer of the gaol, Mr. Greenhow, that the fault lay not with the medical officer, but with the arrangements by which too great a number of persons were improperly crowded into too limited a space.

1788. Have you any details upon that subject?—Yes, I have a return which I requested the medical officer of the gaol to make to me of all the cases of choleraic disease which had taken place in the gaol from the outbreak of the epidemic to its termination, the number of cases of diarrhœa, approaching cholera, and cholera. This is the return, signed, I believe, by Mr. Greenhow (*producing the same*). I believe that to be an accurate return as given by the medical officer of the gaol.

1789. Is that a description of the crowding?—Yes, it appears to be a very accurate one.

1790. Will you read it to us?—"The prison contains fifty-two sleeping cells, comprising "from 350 to 400 cubic feet—one prisoner sleeps in each cell—12 rooms, originally "intended for sick rooms, in consequence of deficient accommodation, are now used as "sleeping rooms. They vary in size from 750 to 800 cubic feet. The number of prisoners "sleeping in these rooms varies from three to five, and occasionally six. The tower, occupied "entirely by females, contains six rooms of larger sizes, containing from 2,200 to 3,000 "cubic feet. In this part of the prison, fifty females have been occasionally—though rarely "—confined at one time. During the late epidemic, eight prisoners were confined to bed "in one room, containing 1,850 cubic feet; and nine prisoners in another room, containing "2,400 cubic feet. The establishment of an hospital in the men's sick rooms relieved the "overcrowding of this part of the prison; and good hospital arrangements were made "for the men."

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1791. Does that description convey to your mind the impression of overcrowding?—Unquestionably to a very great extent.

1792. To an extent likely to have affected the health of the prisoners?—To an extent such as to render it extremely probable that, in an epidemic of cholera, the disease would locate itself in such an establishment.

1793. Has the mortality of prisons, in this country generally, been a high mortality from cholera?—No; quite the reverse—by the happy arrangements which the legislature has made for the care and preservation of the lives of prisoners, they are placed in a far better position than the great mass of the industrious and labouring artisans of the country.

1794. Should you consider the amount of sickness and mortality that occurred in this establishment to be a high sickness and mortality?—To be very excessive.

1795. Did you visit the prison yourself?—I did carefully, during five or six hours. I was engaged with Mr. Greenhow in inspecting every part of it.

1796. Did you form any opinion as to the arrangements for ventilation?—The ventilation was exceedingly imperfect—in fact it was quite impossible to retain in a state of health the number of persons who were confined at that time in the prison.

1797. We have had brought under our notice that a village some little distance from here, supposed to have been particularly healthy, and supposed to have very good sanitary arrangements, or at all events not known by the gentleman who gave us the information to have any sanitary defects, suffered extremely from cholera. That was the village of Whalton. Did any matters relating to that village fall within your knowledge?—In consequence of the representation that this so-considered healthy village had suffered severely from cholera, I received instructions from the General Board of Health to proceed to Whalton, and to make an examination as to the amount of mortality that had prevailed there, and the causes which had led to it.

1798. What was the result at which you arrived?—I am perfectly satisfied that the impression that it was anything like a sanitary village is erroneous in the extreme; for having gone into every room and every house occupied by persons affected by choleraic disease during the outbreak there, I was quite satisfied that the village presented conditions of things highly favourable to the reception of the epidemic in almost every instance.

1799. Is it a pretty village?—Passing through it by the highway from Morpeth, you have on the right hand side a green sward, and the lime-washed houses give it a clean aspect, which would quite deceive the passer by; but, on entering into the houses themselves, you find a want of ventilation, a want of house drainage, a percolation of water from behind rendering the houses damp, the existence of accumulations of abomination round about, and in the immediate vicinity of, the houses, a want of domestic conveniences, and, where they exist, conditions such as to be eminently favourable for the reception of epidemic cholera.

1800. Having your note-book before you, perhaps you can give us some particular illustrations of what you allude to?—The most striking instance perhaps is that of the medical officer of the district himself, whose wife was one of the first to perish by the disease; and whose house was the last exhibited to me. Mr. Vardy's wife died very early in the epidemic; and Mr. Vardy with great difficulty was prevailed on by me to show me his back premises; but, having visited those back premises, I found that within a few feet of his wife's bedroom there were fourteen cart loads of manure, with a quantity of the drainage matter from this manure lying round about, and the drain going under a stable into the common sewer immediately below. I cannot conceive any probable condition of things which would be more favourable for the localisation of disease than having that matter constantly under the window of an invalid, unable to leave her room.

1801. If it had happened to you to survey this place, not knowing that cholera had prevailed there, but simply with a view to pronounce on its state of sanitary fortification as against that disease, should you have formed a favourable opinion?—Certainly not. I think it has all the conditions which are unfavourable to health. It has no house drainage; it had at the time an excessively damp soil, which is one of the most predisposing causes we know of in respect of cholera—the few feet of earth, imposed on the strata of stone, were saturated with moisture; there are no means for the removal of the refuse, no proper conveniences, and no ventilation in many of those houses.

1802. Is it a consequence of that, that the matters which should pass off by house drainage are retained?—They are raised in vapour by every sun that shines, they are inhaled by every individual, and always tend to the deterioration of the health of the individual.

1803. Then, so far, it would be your belief that any report which we may have had furnished to us as to that village being in a sanitary condition must have been founded on a superficial observation?—It must have been founded on an examination of the locality from without, and not from within.

1804. (*Chairman.*) In your judgment, and after your detailed inspection of the whole place, does that village of Whalton present any exception whatsoever to the ordinary sanitary doctrine, that disease and epidemics are generally to be found where sanitary arrangements are defective?—Most unquestionably not.

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1805. It is rather a confirmation of the rule?—The cleanliness of the exterior, and the cleanliness of certain portions within, that is to say, as to the lime washing of the walls, give it a clean appearance which I think has misled superficial observers.

1806. (*Mr. Simon.*) Do you happen to know, whether zymotic diseases of any kind had prevailed there before this outbreak of cholera?—I am only aware that one case of cholera had occurred there at an early period in 1832, in the case of Douglas—this case however is stated to have been imported, or seemed to have been imported, from Wallsend, where cholera had been. The person attacked certainly had then the disease incubating in him, because he was taken ill two hours after his arrival.

1807. Were certain measurements taken of the widths of the alleys or entries, in particular parts of the town of Newcastle, under your direction?—My colleague, Mr. Grainger, being very anxious to ascertain the physical facts in relation to that district, requested me to obtain for him not only statements as to the privy accommodation, but as to the size of the various alleys. I sent him a general summary which I caused to be taken; but I furnished myself with minute details.

1808. (*Chairman.*) Taken by a person of the name of George Lockey?—Yes, I employed him to make measurements.

1809. (*Mr. Simon.*) Have you confidence in the accuracy of those details?—I believe these facts are accurately given—great care was taken, and continued inspection was made for the purpose of preserving accuracy.

1810. Is that the paper (*handing a paper to the witness*)?—Yes.

1811. We find that the average width of the 8,000 or 9,000 links'* length of entries there is, at their entrance, from three feet four inches to three feet six inches; and that their width at the centre may be taken at the average as four feet. Will that average accord with the results of your own personal observation?—Precisely.

(*The following are the measurements alluded to; the truth and accuracy of which was afterwards sworn to by Mr. George Lockey, who made them.*)

MEASUREMENTS OF ENTRIES IN SANDGATE, NEWCASTLE-UPON-TYNE.

NORTH SIDE.

No.	Names of Entries.	Length in Links.*	Breadths.		
			Entrance.	Centre.	Outlet.
			ft. in.	ft. in.	ft. in.
1	Renoldson's Court	225	3 4	13 4	3 4
2	Barley Mow Entry	260	3 4	3 4	3 4
3	Eddy's Entry	210	3 4	7 4	7 4
4	Seller's Entry (no outlet)	140	3 4	4 8	—
5	Mill Entry	260	3 4	8 0	4 0
6	Johnson's Entry	265	3 4	8 0	3 4
7	Wrangham's Entry	255	4 0	4 0	4 0
8	Spencer's Entry with a Turning leading into Three Tuns or Maugham's Entry	105	4 0	4 0	4 0
9		65	4 0	4 0	4 0
10		271	4 0	4 8	4 0
11	Gibson's Entry, Chapel Lane	167	3 4	3 8	4 0
12	Hill's Entry, Chapel Lane	141	3 4	4 0	4
13	Meeting House Lane	260	3 8	3 4	4 0
14	Nag's Head Entry	250	4 0	6 0	4 8
15	Robson's Entry	115	3 4	6 8	—
16	Anchor Entry	250	3 4	4 8	4 0
17	Blacksmith's Entry	270	3 4	4 4	3 4
18	Cox's Entry (no outlet)	104	3 4	—	—
19	Young's Entry	270	3 4	14 0	5 0
20	Sommerbell's Entry	122	3 4	6 8	—
	Youll's Entry, Row's Entry, Watson's Entry, White House Entry, Hodgson's Entry	Short Entries no outlets, average breadth 3 ft. 4 in.			
21	Wood Entry	270	3 4	3 4	3 4
	Total	4,275			

* A link is the hundredth part of a chain, so that 8,000 links make a mile.—*Vide* Q. 6,990*post*.

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SOUTH SIDE.

No.	Names of Entries.	Length in Links.	Breadth. Entrance.	Breadth. Centre.	Breadth. Outlet.
			ft. in.	ft. in.	ft. in.
22	Folly Lane	75	7 4	7 4	7 4
23	Cross Keys Entry	252	4 0	4 8	6 0
24	Pot House Entry	268	4 8	6 0	5 4
25	Flag Entry	277	3 4	8 8	6 0
26	Petrie's Entry	291	3 4	5 4	4 8
27	Keel Entry	140	4 0	4 0	—
28	Steam Wharf Yard	290	13 4	—	4 8
29	Malcolm's Chare	293	6 8	6 8	6 0
30	Blue Bell Entry	275	4 0	6 8	6 8
31	Bell's Lane	280	3 4	7 4	3 4
32	Tyne Brewery	280	15 4	31 4	11 4
33	Mount Pleasant	140	5 4	5 4	—
34	Pin Entry	119	3 4	9 4	—
35	Continuation of Pin Entry	79	3 4	6 8	—
36	Entry out of Sandgate	100	3 4	4 8	—
37	Half Moon Entry	205	6 0	4 8	5 4
38	Brewery Lane	60	3 4	—	3 4
39	The Swirle	312	24 0	24 8	26 8
40	Dock House Lane	207	3 4	6 8	6 8
41	Nimmey's Entry	209	4 4	12 8	6 0
42	Downey's Entry	204	3 4	7 4	8 0
43	The Gas Works, 195 by 108 links	—	—	—	—
44	Dalton's Entry	196	3 4	6 0	4 4
45	Wide Open	—	—	—	—
	Total length	4,552 links			

The exact breadths are given as to entrances and outlets; the centres are averaged, or taken extreme.

Average breadths:—At entrance, 3ft. 4in. to 3ft. 6in.

At the centre many of them are wider than at the entrance; but 4 feet may be taken as the average. The outlets are again contracted.

Between the gas works and Wide Open, there is a house, formerly Farrington's, which was fitted up as a cholera hospital during the epidemic of 1831.

Length of Sandgate itself	-	-	10 chains.
St. Ann's Street, being a continuation of Sandgate	-	5	„
Total length	-	15	„

Width—	feet	ft. in.	feet
Sandgate	28	12 0	10
St. Ann's Street	10	9 4	8

Area of Sandgate Block:—	A.	R.	P.			
South Side, from Folly to Swirle	2	2	32			
North Side, from Folly to Wood Entry	2	2	0			
				5	0	32
St. Ann's Street:—						
South Side, from Swirle to Wide Open	1	0	0			
North Side, from Wood Entry to New Road	1	2	0			
				2	2	0
Total area of Sandgate				7	2	32

GEORGE LOCKEY,

Prepared for Dr. Gavin. October 20, 1853.

1812. During your stay in this town, from such information as you gathered for yourself, and from such information as the visitors brought under your notice, should you have inferred that the 109th clause of that Local Act of 1846 (*handing the same to the witness*) was in operation within the borough? Perhaps you will mention the articles in the clause separately?—"Be it enacted that it shall be lawful for the said council and

"they are hereby empowered from time to time to make bye-laws as they shall think fit for all "or any of the purposes following, that is to say, for making regulations for the registration "and inspection of slaughter-houses, and knackers' yards, and for keeping the same in a "cleanly and proper state, and for removing filth therefrom at least once in every week." I certainly am unaware of any regulations having been in force for that purpose, if any such have ever been made.

1813. "For regulating the manner of keeping swine, and preventing the keeping "thereof within any dwelling house, and for describing the limits in such borough within "which it shall be lawful to keep the same." Did you see evidence of the operation of any regulations made under that power and authority?—I saw no such evidence.

1814. Did complaints come under your notice of the keeping of swine about houses?—Continually. I should be very desirous to put in evidence the returns of the medical visitors with regard to the nuisances which they found, in order that something like an accurate idea might be had of the enormous number of nuisances which actually existed, and which were complained of.

1815. "For regulating the duties of scavengers, and for regulating the management of "public privies." Did you see evidence of that?—There must have been some regulations with regard to the scavenging, because it was performed; though certainly in an imperfect manner.

1816. And touching the public privies?—I am not aware what regulations had been made—perhaps this is a matter of ignorance on my part. There *may* have been some regulations made, but I am not aware of them.

1817. Were they found in a good condition. Did the visitors report them to you as being in a good condition when they alluded to them?—Unless very efficient care indeed be taken of public privies, they become intolerable nuisances. I am not aware of any town in the kingdom, except perhaps Inverness, and a new public privy erected at Dundee, where efficient regulations have been made for frequent and effectual cleansing of public privies.

1817 A. "For making regulations for the registering of lodging-houses, and for main-"taining cleanliness therein, and keeping them in a wholesome condition?"—That certainly was not adopted.

1817 B. "For laying down rules for cleansing filthy and unwholesome dwellings?"—I believe no such rules were ever laid down.

1818. No such rules came under your cognizance?—Unquestionably not.

1819. Did the details brought under your notice by your medical visitors make it seem probable to you that such laws had been in operation?—The only evidence I know of the existence of any such rules is their authorization in the Act of Parliament.

1820. Did you see any evidence here of the working of the public Act for the establishment of lodging-houses for the labouring classes?—No; I believe no such powers were ever exercised or contemplated.

1821. Did it appear to you, from the condition of the poorer population here, that the exercise of such powers would have been desirable?—One of the most valuable blessings and boons that could have been conferred upon the population.

1822. Do you happen to know much with respect to the condition of such establishments in London as model lodging-houses?—I have been over most of them, and know their condition and their rules pretty well.

1823. Have they enjoyed any particular exemption from illness?—Almost beyond belief. The amount of disease that has prevailed in these establishments is so small as almost to strike the reader, for the first time, with incredulity; and it is only by a series of observations, extended over a series of years, that one is ultimately led to the conviction that there is not some deep-seated source of fallacy as to the amount of mortality that prevails in these establishments. The comparison of the condition of the inmates of those establishments is so eminently in their favour, and so largely against the condition of the people who dwell upon the property close by, that it becomes one of the most marked improvements in the legislation of modern days in the way of the preservation of the health of the masses of the people.

1824. (*Chairman.*) Have you any reason to doubt the accuracy of Dr. Southwood Smith's late pamphlet upon the subject?—I have the most perfect reason to believe in its exactitude.

1825. The mortality there is stated to be seven per mille per annum, instead of more than twenty-eight per mille, as in Newcastle, on the average of the last fifteen years?—Yes, exceedingly small.

1826. (*Mr. Simon.*) Supposing some few houses of that description had been established within the borough of Newcastle, do you believe that the few hundred persons contained in those dwellings might have enjoyed a comparative exemption from disease?—There is no reason whatever to doubt that the same results, which have proved so successful in all other places, would have proved equally successful in Newcastle.

1827. Would they have been of advantage beyond that?—Infinitely, in so far as they would have served as examples to those who were willing to invest money in the erection of property for the accommodation of the labouring classes; and many of the rich are unwilling to invest their money in that kind of property, from a doubt as to its being

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remunerative; whereas it has been found by these establishments, that such properties may be made perfectly remunerative. In further reference to the model lodging houses, and with regard to a very important and highly desirable clause in the Newcastle Act by which power is given to shut up houses unfit for human habitation, I would respectfully submit—supposing this inquiry be made with a view to the remedying of evils which are proved to exist—that it is highly desirable that the arrangements for the prevention of the conditions which have been represented to exist in Newcastle should be made—not after they have been arrived at—but before; and that it would be infinitely more expedient,—in place of shutting up houses which in consequence of the amount of disease existing in them, or for other reasons, have been declared to be unfit for human habitation,—that all houses should be certified to be fit for human habitation before they are let, to the very poor classes at least; and that if a house be not so certified, the power to recover rent should be taken away from the landlord; and perhaps, if necessary, that a penalty should be inflicted on the landlord, for letting a house which had not been certified to be fit for the reception of human beings.

1828. You would think that houses, let in separate tenements for the reception of several families, require as much supervision, and as careful regulation, as those so-called lodging-houses, which receive great numbers of separate individuals?—It appears to me that, if it has been found desirable by the legislature that the mass of the community of the lowest description, the vagrant population, should have health secured to them by a registration of the houses in which they reside, and by the enforcement of conditions favourable to health, it is very desirable to extend that measure to the great mass of the industrious and labouring poor of the country.

1829. (*Chairman.*) You are aware that similar arrangements prevail to some extent with regard to ships?—They do.

1830. That the admiralty and other public bodies often will not charter or take up a ship till there is a certificate obtained from a proper person that she is sea-worthy, and you propose that the landlord shall not be allowed to let a house in that way until he has obtained a similar certificate from a competent party that it is fit for habitation?—Precisely.

1831. (*Mr. Simon.*) Should you be disposed to think that the visitors' returns in the aggregate brought under your notice pretty completely the condition of the labouring and artizan classes of this town?—They had very extensive opportunities of acquiring proper information; and I have reason to believe that six or seven weeks, spent in visitation day by day of those localities, did give to each of the visitors so employed a very large and most important amount of information; and that the representations which they made were therefore based upon an amount of service which would be likely to give very accurate results.

1832. What impression have you thence derived with respect to the condition of those classes in this town?—That they are placed under circumstances extremely unfavourable and inimical to health, circumstances over which we have or may have control, circumstances which could be prevented, and which ought to be prevented.

1833. Do you believe that their lives are abridged of their possible and normal duration?—I have no more doubt of that, than that the sun shines.

1834. To a large extent?—To a very great degree I believe. So far as I can make out the population of Newcastle undergoes a mortality of nearly one third in excess, that is to say, that nearly 30 per cent. of the persons that die here need not die, at least, at the times when they do die.

1835. Estimating the average death rates for this district, as calculated by the Registrar General from the mortality of the last fifteen years, at between twenty-eight and twenty-nine per 1000 per annum, do you think that a high death rate?—Exceedingly.

1836. What allowance should you think it requisite to make in that death rate for such influences as are peculiar to the locality, but yet not falling within the scope of what is commonly called sanitary regulation; such as accidents in mines, accidents in manufactories, poisoning by lead and the like?—These form in reality a very very small proportional amount of the death rate. They are so small as really scarcely to be worthy to be taken into consideration in anything like enlarged views of the causes which lead to excessive mortality.

1837. (*Chairman.*) Do they amount to more than a fraction of 1 per mille?—I doubt very much whether they do.

1838. Did you, during your stay here, apply to Mr. Renwick, the registrar, for a return of the number of houses, of separate occupiers, and of persons in Sandgate?—I did.

1839. Is that his return?—Yes.

The following is the return alluded to.

Stepney Terrace, 21 October 1853.

Sir,—The following is as near an approximation to the number of separate occupiers, houses, and persons in Sandgate, as it is in my power to make:

Separate occupiers, 935,—Houses, 350,—Persons, 4,600.

I mean by "Sandgate" the group of lanes and houses on each side, bounded on one side by the river and on the other by the New Road.

I am, Sir, your very obedient servant,

Dr. Gavin. MATTHEW RENWICK, Registrar.

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1840. Did you also employ the same Mr. Lockey, to whom allusion has been made before, to go through Sandgate to verify the statements made to you with respect to its destitution of privy accommodation?—I employed this person to go and hunt up all the privies that could possibly be found in the locality, and give me a statement as to their existence.

1841. Is that his return?—Yes.

The following is the statement alluded to, and was afterwards sworn to by Mr. Lockey, who made it, as correct.

PRIVIES IN SANDGATE, October 19, 1853.

Private.—

1. Water-closet in Portland Arms public house.
2. „ in Eliza Young's public house, foot of Flag Entry on the quay.
3. „ in Tyne brewery-yard. Locked.
4. „ in Mount Pleasant, used by workmen at brewery.
5. Privy in Wharf Yard, for use of the workmen.
6. „ in Half-Moon Lane, attached to the Half-Moon public house. Locked.
7. „ in Watson's Entry. Locked at nights.

Public.—

8. One at the end of the Swirle, next the river; had a bad smell, entrance closed by a swing door.

The corporation are forming a public privy at the Sandgate end of Malcolm's Chare, seventeen feet in length.

ENTRIES and LANES in SANDGATE.

There are about forty entries or alleys in Sandgate, most of which run through to the New Road, on the north side, and the quay on the south. The entrances to the alleys are generally covered over. Breadth of entrances from three feet four inches to three feet six inches; at the centre averaging about four feet and upwards; again contracting at the outlets to about the dimensions of the entrances, or nearly so. GEORGE LOCKEY.

Sir,—I beg leave to hand you the annexed report of my visit to Sandgate this day, for the purpose of ascertaining the number of privies, and the breadth of the entries and alleys.

Mr. Matthew Renwick, of Stepney Terrace, Newcastle, was the registrar in this district for the census of 1851. If an official letter be written to him, he will, no doubt, be able to furnish information as to the number of houses, and the number of occupiers.

I am, Sir, your very obedient servant,

To Dr. Hector Gavin. GEORGE LOCKEY.

1842. (*Mr. Simon.*) Do you believe that, during the period of the epidemic, all exertions were made that could be made by the authorities, viz.—until the 22d of September by the board of guardians and subsequently by the corporation, for the relief of the evils that had arisen?—I am only enabled to speak of the measures that were taken previously to my arrival from the evidence presented to me by the minutes in the various books, and from the information I received. I am enabled to speak of the measures taken subsequently to my arrival from my own personal knowledge and experience; and I have no hesitation in saying that I believe the board of guardians did as much as any similar body of men placed in similar circumstances could by any possibility be expected to do. And I think that, though the corporation might certainly have acted with more energy and with perhaps more zeal, yet taking into consideration the structure of the body and the difficulty of the time, nearly as much was done by them as could very well have been expected in the way of alleviating the disease. In the way of preventing it, I believe, as I stated before, that nothing had been done.

1843. By alleviating the disease, are we to understand you to mean the removal of nuisances or the treatment of the sick?—The treatment of the sick, and the prevention of persons becoming ill by proper systematic visitation, rested entirely with the board of guardians, and that duty I believe they fulfilled with the greatest possible benefit to the community, and with the greatest honour to themselves. I believe no endeavours were wanting which could have tended to benefit the people after my arrival. With regard to the corporation, their duty rested with the conditions of property and the conditions of things; and I have already stated that there was some difficulty and considerable delay in carrying out any measures with reference to these; but there must be recollected as an apology for, and which I think is due to, the corporation, first, the want of water-supply to wash the courts and streets; secondly, the necessity of not disturbing large masses of refuse and abomination which might exist in various localities, and that even to remove smaller masses of decomposing filth in and about the houses of the inhabitants could scarcely be very safely done at that particular period.

1844. Did accumulations of refuse matter exist to such an amount, and did the filthy conditions of property exist to such an extent, as to lead you to believe that there had been habitual neglect of those evils, previously to the introduction of the epidemic?—To infer neglect implies appreciation of the evil. I doubt very much whether the authorities of Newcastle ever thought them evils at all, or that they were anything more than normal conditions of things.

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1845. Do you think it possible, by any amount of zeal and energy at the moment and amid the panic and excitement of an epidemic, to compensate for these errors of sanitary indifference or ignorance?—No amount of energy on the part either of a government or a corporation or of individuals can compensate for previous neglect. The only safe means of preventing disease, and especially cholera, from locating itself as an endemic, and not as an occasional visitant of our country, consists in the establishment of those measures of prevention antecedent to its arrival, which are essential to prevent the localization of the disease; and no measures taken during the epidemic would do more than effect a mere comparative mitigation of the calamities which will inevitably ensue.

1846. Is there any information which you can give us with respect to the measures that you adopted with regard to the management of the disease, the organization of the medical staff, recommendation of hospitals, and the like?—Having arrived on the afternoon of Saturday, the 17th, I was in communication with Mr. Grainger on the afternoon of that day, on the Sunday, and up to mid-day on the Monday. Immediately after that, Mr. Grainger left, and the whole responsibility of the arrangements then devolved upon me. I endeavoured to the utmost of my ability immediately to organize a staff of house to-house visitors, separate and distinct from the staff of medical men and medical assistants attending on the sick. In this I was not very fortunate the first day, inasmuch as I only obtained for aid the assistants of the medical men, who, after their first day's service, declared that they were unable to perform the work, and the medical men themselves stated that they could not spare their assistants; they required them for the purpose of attending to the sick. In corroboration of this I would hand in a letter from Mr. Winship, the medical officer of No. 1 district, in which he states that the visitors whom I had appointed on that day were unable to perform the duties, as they were required for the purpose of attending the sick. I hand in this for the purpose of showing the difficulty of my getting a staff of house-to-house visitors separate and distinct from the staff of assistants to the medical men. Placed in this difficulty, I solicited from the medical men of the town, in the adjoining towns, and from London, such aid as I could obtain in the way of house-to-house visitors, and I was fortunate enough to obtain two or three persons who had acted as house-to-house visitors in the visitation of cholera in 1849 in London, and who were able to aid very well in assisting the others in their duties. This corps was established; they acted, I believe, most efficiently in the way of discovering cases of premonitory disease, and of preventing such cases of premonitory disease passing on to the more developed stages of the disease. Besides that, a *carte blanche* had been most liberally given to the medical officers of the parochial board, on the motion of Mr. Philipson, some time before my arrival, allowing these gentlemen to appoint any number of additional assistants they might require to carry out the attendance on the sick. This power, so wisely and liberally given, was made use of, even to a large extent, after my arrival; and in districts where disease prevailed to a considerable extent, medical officers were appointed to reside on the spot, in place of being at the distance of a mile from the infected localities. Dispensaries for the giving of medicines day and night to all applicants were placed in the infected localities. A wide notice was given to the inhabitants by the distribution of thousands of handbills, and by other means, of the arrangements of the authorities. The house of refuge, which had been organized by my colleague, Mr. Grainger, was brought into more complete operation, but was not very well or successfully followed out as a measure of safety. The tent-accommodation, which had been provided at the suggestion of my colleague, Mr. Grainger, was established, but, unfortunately, not so successfully as a measure of relief as it might have been, had we had despotic powers in order to turn out from their filthy and unwholesome houses the wretched inhabitants who were living in the midst of pestilence, and to secure for them the comparatively free and pure air of the common. Hospitals, properly so called, were not established in the infected localities, and I am not sorry that they were not; because all the experience which I have been enabled to acquire in this country and abroad as to the results of hospital attendance, is to the effect that the mortality is larger in such establishments than that which would take place by the proper treatment of the affected persons in even their own wretched houses. I think, therefore, that as a measure of safety there is nothing to be imputed in the way of the non-establishment of hospitals. The death rate in the vagrant ward, as well as the last death rate of a hospital which I refer to, namely in Dundee, would show an excess of mortality as compared with the amount of mortality which would probably have taken place in the homes of the patients themselves, had they continued at home. Moreover, as a great many persons are taken from their homes in the last stage of the disease, they are actually shaken to death, and have their chances of recovery infinitely diminished by transit for miles. I believe that more harm than good is done by such establishments.

1847. With respect to the issue of a formula, what steps did you take?—When I arrived, it appeared that no common formula had been adopted by the medical men in the locality, or at the dispensaries or depôts of medicines which were established; so that in the want of such common formula, a variety of medicines being prepared and dispensed at such depôts, one person might have, in a series of visits to the various depôts, a variety of medicines each incompatible with the succeeding. To avoid that difficulty, I called a meeting, through the clerk of the board of guardians, of the medical officers of the

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union, and requested them to unite in agreeing upon some common formula; and I am happy to state that the medical officers of the union agreed. I did not consider it any part of my duty to lay down any formula—it was the duty of the medical officers of the board of guardians to state the formula which they considered would be essential, and they did so. All that I did on the occasion was, simply to state the results of the experience of some of the house-to-house visitors in the London visitation and abroad. The adoption of the form was a mere matter of choice on their part, and was not adhered to entirely by Mr. Rayne, the medical officer of the Trinity Board, who, with myself and the medical officer of the garrison, also met for the purpose of considering what formula might be adopted. Mr. Rayne agreed upon the formula which he thought best, and I, with all proper decorum, entirely acquiesced in whatever view he might choose to take as to the medicines to be supplied under the circumstances. I adopted another step in reference to this, which I conceived of some importance; that is to say, with a view to consult as far as possible, and to act as decorously as I could towards, the profession; and believing that they would give an amount of sanction to any common formula, which could scarcely be given by the medical officers of the board of guardians, I called a meeting through Mr. Gibb, the secretary to the Newcastle Pathological Society. The meeting was held on Tuesday, the 20th, the first day that I was at liberty, and I submitted to the meeting the propriety of agreeing on some common formula; but I am sorry to state that the meeting was of so confused and disorderly a nature, that no possible conclusion could be arrived at,—no formula was agreed upon; and the meeting, in place of discussing the point in question, namely, the establishment of a common formula for the welfare of the great mass of the people, ended in endeavouring to teach me my duties as to what I should do in the execution of my Government commission.

1848. (*Chairman.*) Did you on that occasion feel that, by the step you had thus taken in calling the medical profession together, you had put yourself into a false position?—I conceived that I had performed an act of courtesy, and was exhibiting, in the best way that I could, a desire to establish co-operation with my professional brethren; but I found that in place of receiving the co-operation and aid which I desired, the meeting was extremely disagreeable, and that it required an amount of forbearance on my part which I have seldom had occasion to exercise. The result of the meeting was to impress upon my mind the inadvisability of holding such meetings, except under very special circumstances.

1849. (*Mr. Simon.*) Did you find in Newcastle any more difficulties than you would expect to meet with in the average of such meetings?—I have had occasion, during or since 1849, to meet with medical men in a great number of the parishes in London; I have had occasion to meet with medical men in a great number of localities abroad; I have had occasion to meet with medical men in the other large towns and villages where I have recently had to perform my official duties; and I certainly have not elsewhere met with a state of things which endered the co-operation of the profession so difficult to obtain as it was in Newcastle.

1850. Is it an instruction to the superintending inspectors of the Board of Health, under circumstances similar to those which preceded the arrival of Mr. Grainger and yourself here, to call together the medical men?—It is a private instruction of the Board of Health to endeavour by all means to secure the co-operation and aid of the medical profession, the same as it is an instruction to secure the aid and co-operation of all persons in carrying out one's official duties; at the same time the manner in which the carrying out of such a general instruction is to be performed is to be dependent entirely on the knowledge and judgment of the individual, and the expediency of the circumstances.

1851. Speaking generally, you would have no doubt of the advisability of obtaining the assistance and concurrence of the medical profession?—I think it one of the most desirable and important things possible, that medical men should unite together in effecting that which they have so great a power to do, namely, saving human life—a charge which devolves upon them especially, through their education and by their profession.

1852. Did it appear to you that the medical service in attendance on the poor in respect of the advanced stages of the disease, cases not falling within the scope of the visitors' duty, was as complete and efficient as it could have been?—I might, perhaps, decline to answer that question; because it places me in the position of passing an opinion as to how far my medical brethren had been efficient in the performance of their medical duties,—a position which I should not always like to assume. But I have no hesitation in stating, as my opinion, that I believe the service was very effectively and very honourably performed; and that I believe it was performed to a degree which no one, who does not know the nature of so terrible an epidemic as we had, can conceive. I state this, however, with my first reservation, namely, that it is not an opinion which I should be anxious to express, if it were not that I had the happy chance of being able to express it in a favourable way.

1853. My question was not, of course, intended to invite criticism, unless you were anxious to give it, on any detail of medical practice; but rather to elicit from you whether the medical organization for the treatment of the disease, as directed by the board of guardians, was sufficient for the treatment of the sick?—The medical officers, having the responsibility imposed upon them of obtaining any amount of medical aid that might be requisite, endeavoured to see, I believe, to the best of their ability, to the attendance of

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the sick. At the same time it appears to me that it would be more expedient, in attempting to attend to masses of sick persons in a large town, during a great epidemic, that the individuals, who had to attend to the sick, should dwell as far as possible upon the spots affected, and not at a great distance from the infected localities. I think, in this respect some of the original arrangements might have been made for the better.

1854. Did you form an opinion, or make any exact observations as to the quality of the water supplied to the people of Newcastle by the Whittle Dean Company?—I should prefer not giving any evidence on this point, because from the pressure of the other engagements upon me, I was unable to turn my attention to that subject; and my colleague, Dr. Waller Lewis, had special charge of all the facts in relation to water supply.

1855. Was Dr. Lewis here at the time of the epidemic?—He came on the 19th or 20th,—the 19th, I think.

1856. Were you able to form any opinion as to the sanitary condition of the houses of the wealthier class of the population of Newcastle, so as to be able to guide us at all to a judgment whether well-arranged houses—houses in a good sanitary condition—were affected with cholera?—No, I do not think that I am in a position to give any evidence of that kind of any value to the Commissioners; my time was so completely taken up in measures of practical utility and the saving of human life, that I was enabled to devote but little time to anything but that which came in my immediate way.

1857. As respects the apportioning of the disease to different localities, have you any opinion as to the association of the disease, more or less, in different places, with more or less of particular physical conditions?—I have no doubt that when the map which has been agreed upon to be prepared by the board of guardians shall be completed, in which every death from cholera shall be marked upon the locality where it occurred, we shall have a very accurate representation of the unhealthy places of Newcastle. I have no doubt, also, that we shall find that this map will entirely correspond with the places which are unhealthy from ordinary endemic diseases, from scarlet fever, typhus, measles, small pox, hooping cough, and so on. I believe that such places exist; and that really, when the question comes to be cleared up, we shall find that the spread of disease has not been so extreme over all the town as it has been exceedingly well marked in certain localities.

1858. (*Chairman.*) Did you endeavour to form an estimate of the loss which may have been sustained by the community of Newcastle during this visitation in respect of stoppage of trade, and certain other points in this return alluded to? (*Handing a paper to the witness.*)—I issued a circular to most of the gentlemen engaged in large works, trades, and manufactures, who were likely to be able to give me information on the point; and this is a short digest or summary of their replies. I shall be very happy to place the whole of the replies before the Commissioners if they require it.

1859. Have you reason to believe this to be pretty correct?—I believe so.

The following is the return alluded to.

REPORT showing the partial Loss to Newcastle by Cholera Visitation, 1853.

Description of Business, &c.	Name of Firm.	Loss, comparing from 1st September to 15th October 1853 with the same period of time in 1852.	Number of houses in Newcastle who may be presumed to have an equal amount of business as those who have furnished information.
York, Newcastle and Berwick Railway. York and North Midland. Leeds Northern Railway	- - - -	£3,000 0*s.* 0*d.*	—
Hotels - - -	Turk's Head, P. J. Brodie.	£354 less receipts - -	About eight of this class.
	George Hotel, W. J. B. Carman.	25 per cent. less than in 1852.	There are upwards of 420 inns, hotels, and public-houses, and about eighty beer-houses.
Linen and woollen drapers, &c.	J. Fenton - -	Receipts £179 less than in 1852.	Another much larger firm who have not replied.
	Richardson & Coxon	Receipts 50 per cent. less than in 1852, but taking mourning into account, only 14½ per cent.	There are about 100 linen-drapers and silk mercers in Newcastle. The eight are among the principal.
	E. Robson & Co. -	£1,200 less received than in 1852.	
	J. Corbett - -	"Business was a good deal affected during the time."	
	Bainbridge & Co.	44¼ per cent. less than in 1852, 79¼ per cent. less in the seven Saturdays in 1853 than in the corresponding Saturdays in 1852.	

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Description of Business, &c.	Name of Firm.	Loss, comparing from 1st September to 15th October 1853 with the same period of time in 1852.	Number of houses in Newcastle who may be presumed to have an equal amount of business as those who have furnished information.
Linen and woollen-drapers—*cont.*	Mr. Young -	"The cholera interrupted his business to a considerable extent."	
	Geo. Brown -	£120 less than in 1852.	
	J. Caldwell -	£70 less, but this includes mourning.	
Silversmiths -	W. Lister & Sons -	£100 less - - - -	These are the two principal; there are four or five others, but not so extensive.
	Reid & Sons -	£2,000 less in receipts.	
Iron Manufacturers	R. & W. Hawthorn	Difficult what to say what loss may be; paid in wages, 200*l.* a week less for four weeks.	Sixteen ironfounders in Newcastle.
Grocers - -	Turnbull & Wood -	29 per cent. less in first three weeks, and 50 per cent. in last three weeks.	There are ninety-two grocers and tea-dealers in Newcastle, exclusive of provision dealers.
	Marshall & Atkinson	17½ per cent. less in receipts.	
	Sidney & Ray -	25 per cent. less in receipts.	
	R. Hastwell -	Receipts 420*l.* less than in 1852.	
Wine Merchants -	Monkhouse & Co.	Not varied - - -	Forty-two wine and spirit merchants.
Green-grocer -	Henry Deevar -	50 per cent. less than in 1852.	Twenty-two green-grocers.
Hatters - -	James Steven -	Cash sales 20 per cent. less than in 1852; credit sales 47½ per cent. more than in 1852; combined 1¼ per cent. more	Twenty-six hatters in Newcastle.

1860. (*The Town Clerk.*) Who prepared that for you?—Mr. Gibbon. There are two points which I should be glad to bring before the Commissioners. The first is the great advantage conferred upon the community by preventing the children in the ragged schools, and at the jubilee schools, from remaining at home during the epidemic, and making them attend their schools as they were in the habit of doing. Of the boys and girls at the ragged schools, and of the boys and girls at the jubilee schools, those who were in the regular habit of attendance, and who were questioned as to the state of their health, and supervised, had no disease; while of those kept away from school, in order to prevent their being ill, a certain number had disease and died. Now, this immunity is not to be attributed to the homes of the children being healthy, because, so far from it, a great number of the homes of these very children, who escaped the disease themselves, have been ravaged by cholera. The next point which I should be desirous to lay before the Commissioners, is the great benefits which accrued from the system of house-to-house visitation as established, I believe, after the 20th of September. During the first six days before the efficient establishment of the visitation, the mortality per cent. was, among the class of gentry 20.3, among the class of tradesmen 47.6, among the labourers and artizans 32. The class of gentry did not come under the influence of the visitation; their proportion of mortality remained much the same during the next six days, viz., 20.1 per cent. The class of tradesmen came only to a small extent under the influence of visitation, and their mortality considerably increased in the second week, viz., to 54.7; while among the labourers and artizans who came strictly under visitation, it decreased to 24.1.

1861. (*Mr. Town Clerk.*) You stated that the house drainage was deficient; will you point out to what particular districts that observation applies?—To five, six, or seven eighths of Newcastle, as I saw it. I may state that my attention was never specially directed to the healthy parts of the town, or to the houses of what are called the respectable and wealthy classes. These did not come under the sphere of my operations, and, therefore, I directed my attention almost exclusively, if not exclusively, to the houses of the poor, and to the worst conditioned districts.

1862. That is to say, in Sandgate?—Sandgate, Pandon, and all those places.

1863. Any other places besides Sandgate and Pandon?—I am not sufficiently acquainted with the names of all the places to state them; I know them well if I go to them.

1864. Was it in the same vicinity as Sandgate?—In all the ill-conditioned localities; for example, all that part of Newcastle which you have built against the hill side. There is no real house drainage there.

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1865. The communication between the house and the common sewer is what we understand by house drainage?—There are communications between the streets and the common sewer, but that I do not understand to be house drainage.

1866. No, unless you have a communication with the house the sewer is of little use. Did your observation apply to districts to the west of the town on the high ground?—In Mr. Sang's district.

1867. In Mr. Sang's district?—Yes: that district seemed to me to be tolerably well drained, so far as I could see. I would beg to direct the attention of the Commissioners to a very important point with regard to that, that even amongst the houses of that class of persons who are so far raised above poverty as to be enabled to acquire the common domestic comforts and conveniences for themselves, the privies are placed away from their houses, immediately abutting on the public highway, and on any day you may see the excrementitious matters soaking through the walls which separate the pathway from the gardens of the houses attached. That does not look to me very like efficient house drainage.

1868. (*Chairman.*) You would not suppose that those privies had been carefully emptied and cleansed under the powers of a special clause of the Local Act of the year 1846, would you?—I should think not.

1869. Under the 94th clause, which enables the council at any time, with a view to the preservation of health, to order privies, ash-pits, and so on to be emptied and cleansed?—I should not.

1870. (*Mr. Simon.*) Of what date do you speak?—The late visitation, the same day that I accompanied Mr. Sang to the workhouse.

1871. (*Mr. Town Clerk.*) You suggested, and very properly suggested, the putting in force of the Act for the shutting up of houses that were unfit for human habitation?—Yes.

1872. You will admit, I think, that some discretion must be used in that, because if you shut up a house in a case in which the inhabitants must either go to houses already overcrowded or lie in the street, you might aggravate the evil instead of lessening it?—Of course discretion must be largely exercised in all these matters; but at the same time, of the two evils, it is better that a person should be placed in a slightly overcrowded house than in a house which, from its physical circumstances, is incapable of maintaining health. On the one hand we have occasional deterioration of the air by the temporary (nightly) overcrowding, and consequently an occasional (nightly) deterioration of health; but on the other hand we have a constant state of things producing a constant deterioration of health.

1873. My question went only to that which must be the opinion, I am sure, of every reasonable man, that you cannot pull down everything at once?—No, it is with that view that I suggested a previous certifying.

1874. In the houses which you pronounced unfit for human habitation, had disease existed to any very considerable extent?—I certified as to one house only, in order to bring the matter before the authorities, and to form the ground-work of further service. The facts of the case I am scarcely prepared to go into now.

1875. Had disease existed in it?—I do not recollect the particulars; I may, however, add, that I am not aware of any town, in all my knowledge and experience, in which a crying evil is not the want of proper house accommodation. I am not aware of any town where overcrowding does not exist to a considerable extent, and where the people should not be spread over a wider superficies.

1876. You have said that the Nuisances Removal Act, since it came into the hands of the corporation to be put in force, was not put in force as you think it should be?—Yes.

1877. We are very anxious to put it in force, I know; and I should be glad to hear in what respect you think we are deficient?—You have not a sufficient staff of inspectors of nuisances. You have no proper schedules for the abatement of nuisances, no proper notices for laying the information before the parties, and no proper books.

1878. Probably you will find that we have supplied that?—That is since my recommendation then. You had no proper book at the time for the entry of them.

1879. What would you consider a sufficient staff?—That would depend upon the amount of work to be done. If you delivered your notices very rapidly, there would be less necessity for them.

1880. We had not a proper record, I think you said?—You had not a proper record. You had no records at all.

1881. And these are the respects in which we were deficient in putting it in force?—You were deficient in another very important point, and that is in your not desiring your inspectors to go round among the householders to find out nuisances instead of merely waiting for complaints. The duties of inspectors, moreover, were thrown upon persons having other duties to perform; those duties being in a great measure incompatible with the effectual suppression of nuisances.

1882. (*Chairman.*) Whatever may have been the machinery employed, or which ought to have been employed, did you find that the nuisances were removed as fast as you think they might reasonably have been?—No; certainly not.

1883. (*Mr. Simon.*) Was the administration of the Nuisances Removal Act, as performed after the 22d of September an improvement on the enforcement of it before that

period?—Yes; I think that the Act was rather better administered, and that the service was more effectually performed when placed in the hands of the corporation, who had a staff to do it, than when in the hands of the board of guardians, who had not a staff to do it. At the same time, as I said before, there were very great and grievous complaints made that the nuisances were not attended to at the time the corporation had charge of their removal.

1884. (*Mr. Town Clerk.*) As to the class of nuisances of a minor description which were complained of, what were they?—Accumulations of refuse matter, accumulations of decomposing refuse lying near houses, small drains, small gutters, and matters of that kind, in contradistinction to large open ditches and large sewers—such as you have at Lovaine Place for instance, a nuisance of a somewhat extensive character—the class of nuisances, for instance, which you will find now if you take the trouble to go below the Castle.

1885. Before we pass from the subject of drainage, will you allow me to call your attention to a passage in the report of the metropolitan sanitary commissioners on the subject of the communication between the common sewer and the houses. They say—"The "object of compelling parties to communicate with sewers was discussed at a meeting "of the commissioners, and it was rather considered that that subject might fairly go "by till some complaint was made, and that the arching over of open sewers, which "was a crying and known nuisance, be taken up first."

1886. (*Chairman.*) Which would you think it most requisite to go into first; the covering of large open sewers, or the making of communications between house and sewer?—It would depend greatly upon the nature of the sewers existing. If the sewers were efficient sewers, it would be desirable to have a house drainage, but when you have large masses of refuse in ditches, it is very desirable that these collections of refuse should be diminished in their morbid influence as soon as possible.

1887. (*Mr. Town Clerk.*) I am putting the case of efficient sewers; would it be expedient, as the commissioners recommend, that we should wait till a complaint was made, before we compelled parties to communicate with the sewers? Do you coincide in opinion with the metropolitan commissioners of sewers?—I am not aware exactly of the bearing of the whole sentence. I should be glad to read it before I made any statement.

1888. (*Mr. Simon.*) You would perhaps consider that an average death rate of between 28 and 29 per 1,000, extending over a series of years, was a sufficient complaint on this subject?—I think that, wherever an average death rate of between 28 and 29 exists, it implies an amount of sanitary evil which ought to justify the interference of the legislature in compelling the local authorities to do their duty to the mass of the people affected by that excessive death rate, and who lead to the formation of it.

1889. (*Mr. Town Clerk.*) Then the Commissioners say this: "The Commissioners "consider that by compelling the owners of houses to join" the common sewer, "they "would be making them pay for that which might inflict a nuisance upon them."—Yes, I can understand what that refers to perfectly; that is where the Commissioners are talking of imperfect sewers.

1890. (*Mr. Simon.*) From what are you reading?—(*Mr. Town Clerk.*) The evidence appended to the Report of the Metropolitan Sanitary Commission.

1891. (*Chairman.*) What is the date?—(*Mr. Town Clerk.*) The publication is of the date of 1848.

1892. (*Mr. Simon.*) Whose evidence are you reading?—(*Mr. Town Clerk.*) I am reading the evidence of one of their officers, Mr. Beriah Drew. The last question is this: "The "commissioners consider that by compelling the owners of houses to join" the sewer, "they would be making them pay for that which might inflict a nuisance upon them." Mr. Beriah Drew answers "Yes." Then they say, "Have you had complaints to that "effect, that a communication by a drain from a house into the sewer had really made the "house more disagreeable to live in, or more unhealthy?" The reply is, "More dis-"agreeable I have. I know the fact myself that it is so. I have recently had a com-"munication made at our own office with the sewer, and at times it is so offensive that we "hardly know how to sit there."

1893. (*Chairman.*) What would be, in your opinion, the state of the sewerage in any place of which it could be affirmed that the making of a house drain into the sewer made the sanitary condition of the house worse?—That it was an imperfect sewerage—sewerage that ought not to have been made.

1894. That it was a sewerage which was in itself a nuisance, and ought to be itself put down and abated?—Yes.

1895. (*Mr. Simon.*) If that were the defence of the particular cases of non-drainage to which you have adverted in Newcastle, should you consider it a valid defence of such non-drainage?—Perfectly puerile, and worse than puerile.

1896. (*Mr. Town Clerk.*) You do not at all agree with the London commissioners, then?—I beg pardon; I think you have made some mistake about it. I think you are bringing forward a part of some evidence which does not properly bear upon the point. I can perfectly well understand that where certain sewers of deposit exist, for instance, as in Newcastle, where, as has, I believe, been stated in evidence already, we have large sewers opening into small sewers, the large ones being below the level of the small, and so on,—communication would be a greater evil than non-communication.

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1897. (*Mr. Town Clerk.*) Westminster, I believe, is as badly sewered a place as any in England?—I should think so.

1898. (*Chairman.*) You know the level of Westminster?—Yes.

1898a. (*Mr. Town Clerk.*) Do not you think that within 300 yards of the Houses of Parliament you could find as bad places as any in Newcastle?—No, certainly not.

1899. Within three or four years past?—I stated before that sanitary evils are of various kinds; and that it is difficult to form a comparison between the sanitary state of one district and the sanitary state of another, because you seldom find that exactly the same sanitary evils which exist in one locality prevail also in another. You may find an excess of sanitary evil of a particular kind in one locality, and an excess of a different description of sanitary evil in another. You seldom, I think, can find, as in the districts that I have referred to in Newcastle, so general an amount of those sanitary evils.

1900. They are more in the aggregate there than you find elsewhere?—I think so.

1901. (*Chairman.*) Did you, for instance, find the same destitution in Westminster in the way of paving and scavenging?—There was, in parts, a great want of cleanliness, and, even a considerable amount of excrementitious matter scattered over the surface; but by no means the same amount of defective ventilation, and certainly not the same amount of rottenness of the walls.

1902. (*Mr. Simon.*) But have you found in Westminster that there has been progressive improvement within the last few years?—Great improvement.

1903. Did you see much evidence here of progressive improvement in those matters?—I never was in Newcastle before I was here on this occasion, excepting in passing through by the railway.

1904. (*Chairman.*) You can speak as to the state in which you found it?—Yes.

1905. And you never saw a place in such a state, on the whole?—I think, on the whole, the districts I refer to present a greater amount of sanitary evils than I could find in any one other district. I am quite sure you will find in some other places greater sanitary evils of a special kind than you will here.

1906. Do you confine your remarks to Sandgate; or also extend them to the district of Pandon, and to the district of Castle Garth and the Close, and so on?—The whole district of houses down to the river.

1907. (*Mr. Town Clerk.*) You have seen something of Glasgow lately?—Yes.

1908. How did you find Glasgow?—With as many abominations on the surface,—much about the same as here; the ventilation is rather better; overcrowding is very nearly as bad in some places, but not quite so bad I think.

1909. (*Mr. Simon.*) Have they a high mortality in Glasgow?—Fearful.

1910. (*Mr. Town Clerk.*) What is their rate of mortality in Glasgow?—The mortality last year was not less than 1 in 26.9.

1911. (*Mr. Simon.*) How much would that be per thousand.—Very nearly 38 per thousand.

1912. Do you know that the mortality here for last year, as given by the Registrar General, was 43.3?—It was.

1913. (*Mr. Town Clerk.*) Do you know the rate of mortality in Liverpool?—In Liverpool parish it was 1 in 29, some years ago.

1914. The model lodging-houses have been adopted with success in London?—Infinite.

1915. But not in other towns?—I may state that in Dundee some very benevolent gentlemen have established some model lodging houses on a smaller scale, by converting old dilapidated buildings into lodging-houses; and their efforts have been attended with great success.

1916. And you can encourage our exertions here by telling us that in London they have completely succeeded?—In London they have completely succeeded, even in a monetary point of view; because now they are becoming remunerative. Hitherto they have not been so, from a variety of causes unnecessary to enter into.

1917. Are they adopted to any great extent in London?—They have accommodation now for many thousands of persons.

1918. (*Chairman.*) They have also succeeded in a sanitary point of view?—Highly so.

1919. Are you aware that on the average of all the years during which these model lodging-houses have been in existence, the mortality has been but 13 and a decimal per mille?—Yes.

1920. (*Mr. Simon.*) Did you visit Walker?—Yes.

1921. What was the state of things there?—Very bad.

1922. Was there much cholera at Walker?—Yes.

1923. Do you think it depended upon the sanitary defects there?—Yes.

1924. Is it without drainage?—All the villages are, practically speaking, undrained.

1925. Is it deficient in privy accommodation?—I am not aware of any decent privy accommodation in almost any of the villages of Northumberland.

1926. Is there much filth about the houses?—About all. The practice in Northumberland is to have deposits of things extremely repulsive to a well-educated mind, and to a person possessed of any instincts of decency. They have their middensteads and privy accommodation together, forming large horrible masses of exposed excrementitious refuse, exposed not only to the rain-fall, but constantly to the sunshine.

1927. (*Chairman to Mr. Town Clerk.*) Who are the owners of Walker?—(*Mr. Town Clerk.*) —The corporation are owners of the fee, but it is let on building leases for 75 years, the most part of it,—the part that is built on.

1928. (*Mr. Town Clerk to the Witness.*)—We had the benefit of your very assiduous and able assistance during the outbreak, and you frequently saw the sanitary committee of the town council of this borough?—Yes.

1929. You are aware, I dare say, that they sat from day to day?—I am.

1930. Did you perceive any want of exertion and care on their part in carrying out your recommendations?—No; I think on the whole they were very active. I should have been glad if I could have impressed them with a little more activity in the way of the suppression of nuisances; and I should have been glad if they had been good enough to have informed me of the resolutions they arrived at in my absence, and handed me copies of their minutes when I asked for them. I think, on the whole, that certain of the gentlemen of the corporation displayed great activity. There were two or three gentlemen, more particularly, who had charge of the tent accommodation, who took a great deal of pains and trouble to endeavour to place that in as good a position as they could.

1931. Did they decline to carry out anything which you recommended—for instance, the tent accommodation?—No, certainly not.

1932. The feelings of the inhabitants induced them to believe that they would not go to the tents; yet, still because you thought it desirable and necessary, it was done?—I would beg to state in reference to that, that the tent accommodation was suggested by my colleague, Mr. Grainger, on the Sunday morning (4 a.m.) after my arrival. We went to the telegraph office, and got the arrangements for it made; it was his particular desire that it should be so, and I felt myself bound to carry out his desires.

1933. (*Dr. Robinson.*) If the arrangements which you completed on the 22d of September, or similar arrangements, had been organized by the 8th or 10th, would not there have been a great saving of human life in all probability?—If these arrangements had been organised, not merely on the 8th or 10th, but if they had been organized antecedently to the irruption altogether, the advantages would have been still more complete. They were organized, I believe, at as early a period as the circumstances, under which the medical inspectors of the Board of Health acted, enabled them to organize such a machinery.

1934. Referring to the opinion of Dr. Sutherland, in the epidemic of 1849, as to the advantages obtained from the board of guardians and the local authorities securing the general co-operation of the medical profession of the town, in your opinion might not similar advantages have resulted had that co-operation been secured in this instance?—I shall be glad if you will explain to me what you mean precisely by the co-operation of the medical profession.

1935. I shall beg permission afterwards to put in extracts from the report of Dr. Sutherland, explaining his views on the subject. He alluded to the moral influence which the whole body of the medical profession exercise, and to the advantages of their local knowledge; and I think that the co-operation of the medical profession, if I understand Dr. Sutherland's views correctly, would tend to secure the general health of the town, and particularly the health of the better classes, for whose protection the machinery of the Poor Law system does not seem adequately to provide in my opinion?—There can be no question that a body of learned and self-devoted men, as the medical profession are, co-operating with the Government and with the local authorities in any measure for the advantage of their fellow beings, would be a measure of the highest importance, and would tend to much public advantage.

1936. In reference to the meeting of September the 20th, to which you have alluded, was any irritation or disapprobation exhibited by the medical men of Newcastle towards each other, or towards the General Board of Health?—I am bound to confess that it was impossible for me to understand what they were driving at; for some gentlemen blamed the local authorities, the town council, or the corporation, or the board of guardians; others the Board of Health; and it was impossible to make out what was wanted. I did request the advantage of the co-operation of the gentlemen with reference to a special point, namely, that they would unite in determining on a formula for the benefit of the people; but so far from that being the point brought under consideration, every other point was brought under consideration instead, and the real point was lost sight of, and nothing done at all.

1937. It would be a difficult thing at any time to induce the medical profession of any town to agree upon a single formula for the treatment of any disease?—I beg to state, that in all other places where I have been there has been no difficulty whatever in finding the profession co-operate in giving one common formula for the treatment of the early stages of choleraic disease. The College of Physicians of London, the faculty of physicians and surgeons of Glasgow, and the local medical men, in a great variety of cases, have united in one common simple formula for the treatment of the elementary stage of choleraic diarrhœa each medical man, of course, reserving to himself his perfect right to act in a

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case under his care upon his own discretion, the object being that persons not qualified to understand, or to treat the early stages of choleraic disease, shall have prepared for them by competent persons such a formula as shall enable them to dispense medicines with safety.

1938. You allude to chemists chiefly, I presume?—Yes; chemists and druggists—and any unprofessional person in fact.

1939. In censuring or blaming the arrangements which were adopted, we ascribe the defects in the arrangements in a great measure to the circumstance of the medical profession not having been convened or consulted in the first instance; there not having been any communication between the medical profession as a body, and the officers of the Board of Health. Of course it is important, if possible, that the reason for this departure from what should seem to be the ordinary course should be discovered. I beg to ask you whether you were aware of Mr. Grainger's hesitation in calling the medical profession of this town together; and whether that hesitation, or disinclination, was the result of any communications which he received from the authorities of the corporation, or the sanitary committee of the town council?—I have no reason in the world to believe that any hesitation, such as you ascribe to Mr. Grainger, in respect of meeting the medical men, arose in any way of the kind. I have had no conversation with Mr. Grainger as to what were the views that he entertained on the subject, but I believe his time was so much engaged during the first few days he was here that the matter could not receive his attention, and I perceive that it was his intention to have been present at the meeting of the medical profession, which was held on the 15th of the month.

1940. (*Mr. Potter.*) Is it not usual to call together at any rate, if not the profession of the town, the officers belonging to the principal charities of the town?—I do not know the conduct that Dr. Sutherland has pursued in all instances, and I do not know what conduct Mr. Grainger may have pursued in all instances; but the conduct which I have pursued (and I must in this case speak for myself) has been to solicit a meeting of the local authorities and of the medical officers attached to the board of guardians or the parochial board and to the other public establishments, with the view of ascertaining the progress made in any measures in relation to the public welfare which it is desirable to discuss; that is the course which I have adopted in nearly every instance, and where I have not adopted it I have had some reason for not doing it, such as the impossibility of sparing the time for it in a city of such a size as Glasgow. I have not yet had a meeting there of the medical faculty; I have had a meeting of the public bodies, the Lord Provost, and other persons, but not a meeting of the medical faculty by itself. I, however, propose to have such a meeting as early as possible; but I must state that if all meetings of the medical profession were to be such as I had the honour to attend on the 20th of the month at the Newcastle infirmary, I should certainly not be desirous to place myself in the presence of such meetings.

1941. Might not that feeling arise from indignation on the part of the medical gentlemen, at not having been summoned together at an earlier period?—I do not know what feelings it may have arisen from. I know it is an act of courtesy to a public officer, having nothing whatever to do with local interests, to receive him with a gentlemanly demeanour, and to behave well to him.

1942. (*Chairman.*) Is there any other point on which you would wish to offer any evidence?—I am not presently aware of any point to bring before the Commissioners.

The witness afterwards handed in a report addressed to him by Mr. Langston, one of the medical visitors in Newcastle, in reply to certain queries addressed to him, in common with the other medical visitors, by the witness, Dr. Gavin; and from that report the following extracts have been made as bearing on the subject of this inquiry.

QUERIES and REPLIES.

1. How long were you employed as medical visitor?—Five weeks.

2. In what registration district were you employed?—In district No. 4 in St. Peter's and Dent's Hole (Byker district).

11. In the course of your visitation have you discovered any place, the sanitary arrangements of which were tolerably perfect, yet where, nevertheless, cholera prevailed?—I have not.

12. Has there been any, and what is the amount of, improvement in the sanitary condition of the district visited by you, effected since the outbreak of the epidemic?—None whatever; it was feared that the stirring up of so much noxious and putrid matter during the epidemic would increase the evil, and all yet remains the same. There were not even facilities for increased cleanliness during the epidemic; for where *water* has to *be paid for at per pail* it is not likely that the usual sluicing out and washing of courts, yards, and passages, would be done by the poor, nor could it be done at all. Water is not laid on, there are no drains or pavements, and if alleys were sluiced out the filth would only be washed into the unpaved streets, from which it could not be further transported, there to do as much mischief as if left untouched.

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13. Have the nuisances which you reported been abated, and to what extent? Have the poor complained much of nuisances and of their inability, from want of efficient paving draining and scavenging, to remedy their condition?—The nuisances have not been abated. The poor have complained much of them and of their inability, from want of sufficient paving, draining, and scavenging, to remedy their condition.

No scavenging has been ever known in the district I am told, from an authentic source, before the last few months: since then, a private individual living in the district has employed a solitary man at his own cost to do occasional work. Little, however, can be done in this respect until other improvements are *completed* (*set about?*)

21. Were the chief causes of the localization of the disease, in your opinion, irremovable: that is, arising from unimprovable structural arrangements of property?—All are removable, in my opinion.

22. Will you state the local and removable causes in the district visited by you, which have contributed to the localization of the disease?—Paving and draining of streets and yards; the cleansing of yards, courts, &c., by the removal of manure and other putrefying masses; the emptying of privies and ash-pits; the closing of privies, ash-pits, and cesspools adjacent to dwellings, with the repairing of those existing, and the building of others in suitable situations. The use of stench traps for drains and pans with water laid on to privies; spouting, and the repairs of roofs, to obviate dampness of walls, and the admission of wet; water should be laid on in plentiful supply to every house; those tenements not amenable to this treatment to be condemned, and persons prevented from living in them (there are several deserving this). Overcrowding to be disallowed: this, however, would find a natural remedy if more houses were built, for the people would eagerly avail themselves of this.

Private speculation here is insufficient to the purpose, evidently because it is the interest of the owners of houses and proprietors of the district to keep up the present abominable system, as the property returns more income in its present form. It would seem to be the duty of the Government, under present circumstances, to provide sufficient and proper habitations by building model lodging-houses, or something of that kind, or encourage others to do so; doubtless it would pay amply for the outlay. Street lighting is also required. Until these necessary improvements are made, disease and death must flourish here.

23. Has overcrowding of persons prevailed, and to what extent?—Overcrowding prevails to a deplorable extent; I refer in proof of this to a report of the sanitary condition of the district in another part of this paper; also to a report upon "Houses in Ropery Bank, Dent's Hole," sent in by me during the epidemic. For the present, I select a single instance illustrative of the fact. John M'Namee, of Chapel Street, St. Peter's, his wife and two children,—four persons—live in a single room, having the following dimensions:—the room is about 7 feet wide by 10 feet long, and 8½ feet or 9 feet high. They all sleep in one bed in the same room, which takes up so much of the floor space as just to allow of a passage round it. There is no ventilation, and the allowance of air would be about 150 cubic feet for each human being, and that vitiated not only by the carbonic acid of their own respiration, but by the exhalations from a heaped-up midden, a privy, and vault close against the wall and window, an undrained and unpaved yard strewed with excrementitious and other matters, and adjacent to others in the same state, besides the exhalations from cooking and others of domestic origin. This must be equal to the hold of a slave ship. See statistics of overcrowding in the "Sanitary Report," with this paper.

24. Were there any particular classes of persons peculiarly affected by the epidemic, or exempted from its operation?—I am not aware of any peculiar proneness or exemption, but I can deny what has been stated frequently, that workers in metal were exempt; for many cases occurred among the workmen in the large *iron works* of this locality.

28. Please to give an account of the sanitary condition of your district, as far as practicable, under the head of—

Location of houses;
Structural arrangements and class of houses
Space allotted to dwelling houses;
House accommodation, that is, as to dust-bins, cupboards, coal receptacles, sinks, fireplaces;
Lodging-houses;
House cleansing by drainage;
House cleansing by removal of refuse;
Scavenging;
State of yards and enclosures attached to houses;
Privies and cesspools;
Paving;
Street cleansing, state of streets, alleys, and courts;
Nuisances;
Water supply;
Sickness, disease, and mortality.

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SANITARY CONDITION OF ST. PETER'S AND DENT'S HOLE, (BYKER DISTRICT) NEWCASTLE.

They are both situate in the eastern suburb of Newcastle, on the north bank of the Tyne.

The highest place at which houses stand in St. Peter's is probably about thirty feet above the water level, and the greatest distance of the habitations generally from the water's edge 200 to 300 yards. From this elevation there is a gradual incline to the Tyne, (thus the whole is disposed upon planes of from one foot to thirty feet above water level) and would be admirably adapted for drainage purposes.

Dent's Hole, at the extremity adjoining St. Peter's, is situated topographically in the same relation with the river, having half or two thirds its population on the same plane with St. Peter's in relation with the river level. It is scattered and irregular, and besides this half or two thirds, there are considerable numbers of persons occupying rows of tenements situate here and there upon the summit of banks or cliffs rising seventy or eighty feet above, and at angles of 60° or 70° with the water; these places I shall especially refer to. The whole extent of St. Peter's and Dent's Hole, along the river's edge, is perhaps about a mile.

The more densly populated part of St. Peter's consists for the most part of five streets running parallel with each other, almost direct north and south, with another street at right angles, traversing the southern extremities of these, and between this last and the Tyne a space of from seventy to eighty yards in extent intervenes, filled up with glass-houses and ironworks.

On the north side are open fields. On the west it is continuous with Newcastle, and on the east with Dent's Hole. There are other more or less scattered and imperfectly formed streets and rows of habitations eastward, separated from the river by St. Peter's Quay and Docks for shipbuilding.

Class of Houses and Structural Arrangements.

Mostly houses of two stories; some few only one, having lofts above, only used for lumber.

The structural arrangement is very bad, for in almost every case the rooms are small and low, without means for ventilation, and have contracted windows, much below the ceiling. Many are very dark; and the doorway—whereas there often is only one, forming a cul de sac within—is generally on the same side with the window.

Space allotted to Dwelling-houses.

Very small indeed; houses being jammed in against other houses, and mingled up in close and confused contact or near proximity with privies, cesspools, cinders, and refuse, middens, heaps of filth of every description, hovels, and other buildings. Yards scarcely exist for the few square feet of filth-bestrewed surface at the back of some dwellings scarcely deserve the name.

House accommodation as to Dust-bins, Cupboards, Coal Receptacles, Sinks, and Fire-places.

Half the district perhaps may have dust-bins of some description, the other half throw the refuse in heaps by the public wayside, in some instances; in others between the backs of houses forming a double row, and the sides of two streets; as at the back of dwellings between Glasshouse Street and Chapel Street, where, may be, a hundred cartloads of cinders are thrown in confusion, mixed up with fæcal matters, urine, animal and vegetable garbage, and an almost endless variety of other decomposing matters, the accumulation of some years. A surgeon of the vicinity assures me that he has no doubt the rice-water evacuations of the epidemic of 1849 help, with the aid of the same fluid of this epidemic of '53, to moisten these heaps of refuse. Persons still continue, in the absence of privies, &c. &c., o throw from their houses every kind of pollution upon these heaps. Cupboards are not prehaps deficient generally; coal receptacles frequently are; in these instances cupboards within the room occupied by the family supply the defect. Sinks are scarcely to be found. Very little is to be observed about fire-places, except that they are rudely constructed and have no relation in their position to ventilation, but answer the purpose for which they were designed tolerably. I find, however, on reference to my notes, that at a place called Pitty Mee, in Dent's Hole, consisting of twelve tenements or rooms, the fire-places generally are falling to pieces.

Lodging-houses.

There are none.

House cleansing by Removal of Refuse.

The houses and premises almost universally are choked up with stinking materials, and there had been no change up to my departure.

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House cleansing by Drainage.

The district may be fairly said to have no drainage or sewerage whatever.

Scavenging

For the most part would be of no utility, where the roadways and paths are not paved, and therefore it is not properly known. With regard to yards, &c., I give particulars in a house-to-house report which I have added to this paper, fearing many of my statements would be disbelieved from their apparent extravagance. In it I have given names of tenants, &c., verbatim, as I took it down in visitation.

Privies and Cesspools.

In almost the whole district of Dent's Hole not a privy exists, and persons here throw out the contents of utensils used within the only room they have for household purposes and sleeping in, in front of their doors, there not being even ash-pits for its reception. Thus at a place called West House, at the extreme east of Dent's Hole, and bordering upon St. Anthony's, and the notorious cholera district of Walker, there are in all eighty-four persons occupying only twenty-four rooms and sleeping in eighteen beds. Those living in the front and two sides of the square throw out everything before their doors; drains even being absent, except one at the back, which is not used by those in the front and sides, and which is in itself a nuisance, being close to the doors of some houses, with an open grate evolving a loathsome stench, and passing beneath the floors of occupied rooms, the crevices between the boards of which freely admit the effluvium, and at times even the sewer fluid itself, and always keep the floors wet. Thus on referring to my notes on this place I find, "there are two stinking dilapidated middens for reception of all matters, reeking "with noxious gases and close to the dwellings of some families; the walls are broken "down, and one privy has been in ruins for years, the wooden seat broken down and "besmeared with dirt, an open vault filled to the brim with liquid night soil, the roof off and "excrement lying here and there upon the floor so as to make entrance impossible. Not "in use."

At Pitty Mee, a place near, occupied by eleven families, consisting of forty-eight persons in twelve rooms, and sleeping in twenty-one beds! there are no privies, drains, nor middens. All here again is thrown out before the houses. At houses on Ropery Bank, Dent's Hole, (see a special report of those by me sent in during the epidemic), twelve families live in twelve rooms, in all fifty-nine persons, lying in twenty-six beds. Of this place the same is to be remarked in every particular.

I might go through the whole district of Dent's Hole, reiterating the same at every nest of habitations. In William Street, St. Peter's, a small but thickly populated street, there are six privies, private to twelve families numbering seventy-six persons, and these are mostly within a few feet or close to the walls and doors of dwellings, with open seats which emit a powerful smell of sulphuretted hydrogen and other gases. The remaining thirty-six families, the ascertained numbers of thirty-two of them being in the aggregate 126 persons, and four other families whose numbers were not ascertained, perhaps in all 150 *persons, have no provision of privies of any kind.* These either throw out the contents of vessels in the front or behind the dwellings, or it collects in earthenware pots or pails, standing to give off its fumes during the day in the single room of the family, as I have myself frequently seen, to be carried at nightfall to the top of the street, and emptied upon a piece of waste ground of some acre or two in extent; there polluting the atmosphere close to the upper tenements, where I have seen much fever and diarrhœa, for it is the nearest spot which is the one commonly selected for its deposition. This is not all, for a gentle declivity of the surface from the open ground above to the streets below, (for this is more or less the common depôt to the five streets whose extremities open into this space,) permits the rain, in the absence of any drainage, to wash the fermenting and putrefying fluids from this spot along them in uneven channels, carved out upon the ground by the unaided and long continued passage of the fluid itself in its course to the Tyne, wandering about in various directions until it arrives there.

Paving.

Scattered patches of rude paving are found here and there, but with the exception of a single street and small portions of one or two others where there are some general rough pavements, *there is no paving whatever either in St. Peter's or Dent's Hole,* and I am told it is quite impassable for wheel carriages in some places in winter. This I can readily believe, for during the rains of my visitation in October, the streets became ankle deep in black mud, and streams of blackened liquid ran along them, or filled the rugged depressions upon their surface.

Street Cleansing, State of Streets, Alleys, and Courts.

Street cleansing has been remarked upon previously. The state of them may be easily imagined from what has been described (at the elevated or north end of the five principal streets is a field or plot where the debris and refuse of glass-houses, potteries, and other manufactures are thrown, carried there by means of carts). A handsome sum in the aggregate, I am informed, is obtained by the owner for permission to cart it there. It is principally the residue of combustion, cinders, and vitrified matters, often put there in a state of ignition, and for a time continues to burn beneath the surface, leaving a crust above deceptive of solidity; and it is current among the people of the district (with what

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amount of truth I cannot certify) that several children at a recent period have been burnt to death by the giving way of this crust, and their falling into the heated mass beneath while playing upon it, it being many feet in depth.

This is the spot spoken of before as the depôt for the ordure and filth from the various streets in the absence of privies and middens. Here, exposed to an extensive surface, flowing down the streets and stagnating in their hollows, the filth steams off its effluvium, congenial to epidemic diseases. The remaining principal street is the one running east and west at the bottom of the others, and to which all these nuisances have a tendency to flow. Backed by the before spoken of glass-houses (factories), iron works, and potteries, that lie between this street and the river here, scores of chimneys, large and small, pour forth one almost unceasing cloud of black smoke, which loads the atmosphere with carbon, and the gases of combustion; at times thickening the air like a fog, the particles falling like a black sleet on everything around, rendering the ground, the houses, and all in the vicinity of the same murky colour. The factories on the one side, and the extended field space for abominations of all kinds on the other, and the midspace crowded with human beings living in close unventilated rooms mingled up with manure heaps, middens, and privies, in confused masses, render this a painful prospect to contemplate, in a time when death hovers about in the shape of a terrible epidemic. To finish the picture, I will add that pigs wander freely about the streets, as I have seen them do generally in the suburbs of Newcastle, but not so very numerous in my district; and a great anomaly holds here—in the midst of the great coal producing district, there is no gas nor any light whatever in the streets at night, in such a densely populated extension of Newcastle, consisting of several thousand inhabitants (I do not know the exact population—I believe about three thousand). In walking the dark streets by night, you are apt to come into contact with rain-water casks set up in front of the houses to receive the spout water, and cautiously feel your way with your feet, constantly risking the dropping into gullies of fluid or mud.

Nuisances.

No special ones beyond those spoken of.

Water Supply.

Very bad in St. Peter's, where there is not a single well nor pump in the place that I can make out, although I am told, if permitted to be sunk, there is very good water almost close to the surface. The Elswick Water Company's pipes are laid down in most of the streets, but are only admitted to a few houses in William-street. A man, I believe, attends daily, and opens a plug in Gray-street to retail water out at a halfpenny per pail to the neighbourhood. Great complaint is made that the landlords will not be at the trouble to carry the water into the dwellings.

Sickness, Disease, and Mortality.

I cannot give any complete account of this kind; it may be judged of from the partial return I shall now proceed to make. I saw many cases of fever during my stay. Diarrhœa, cholera, &c., prevailed extensively, and it lingered here last of any district in Newcastle.

JOHN LANGSTON,
Third year's Student at the London Hospital College of Medicine; Prize Student in Surgery, Medicine, Botany, Forensic Medicine; previously (*i.e.*, in the epidemic of 1849) Cholera Medical Visitor in the City, (East District of the West London Union),
Medical Visitor.

Date, 15th November 1853.

C. J. Gibb. Esq.

CHARLES JOHN GIBB, Esq., sworn.

1943. (*Chairman.*) You are, I believe, resident surgeon and secretary to the infirmary?—Yes, I am.

1944. For how many years have you been so?—I have been five years house surgeon. I was assistant in the infirmary five years before that.

1945. Have you taken any part in the preparation of the reports of the infirmary, or otherwise been cognizant of their contents?—Yes, of late years.

1946. Have you taken a prominent part in drawing them up?—Yes.

1947. Do you see any reason why we should doubt any of the statements of fact, or any of the expressions of opinion which are contained in the reports of the other medical institutions of this town, with regard to the epidemics which have occurred here, and the causes which may have led to or aggravated those epidemics?—I think they are all correct.

1948. As secretary to the infirmary you come in contact with a good many of the members of the medical profession?—I do.

1949. Have you ever heard it alleged that this outbreak of cholera commenced with persons who had themselves come from any previously infected districts, or who had come in immediate contact with other persons who had so done?—Yes, I have heard that alleged: but at the same time I do not think the disease was imported into this town by one or two individuals from other localities.

1950. You do not think that the epidemic here was owing to what we may call immediate importation from abroad?—I do not.

1951. Does your practice as resident surgeon lead you out at all into the town, so as to familiarize you with the state of the districts?—It does not.

1952. Have you any personal knowledge of any district of the town, which would enable you to express a confident opinion on its sanitary state?—No, I think I have not such a knowledge, and, therefore, I am not competent to give any opinion upon that point.

1953. Had you occasion, in the course of the period shortly preceding the recent outbreak, to notice the state of the water?—Yes, I had.

1954. Will you be good enough to favour us with your views on that subject?—I think the water, for some time previous to the breaking out of the epidemic, was very bad water for the use of the inhabitants. It was full of sand; whether it was full also of organic matter or not I cannot say.

1955. As far as the eye went was it objectionable?—Yes.

1956. Did you ever smell it to be offensive?—No.

1957. Then you would not express a confident opinion as to the water having been bad in respect of contamination by any decomposing organic matter?—No.

1958. You merely know that it was turbid, and looked dirty?—Yes.

1959. Did you form any opinion as to the effect which it might have on the health?—I think it was decidedly detrimental to health.

1960. Did you think it necessary to make any suggestion to your patients as to its use or disuse?—No; we used it in the infirmary.

1961. Did you think it requisite to employ any filtering apparatus?—We were accustomed to allow it to stand for a short time before using it.

1962. Did you resort to any extraordinary precautions of that sort?—No.

1963. If you had entertained a confident opinion that it was seriously deleterious, I suppose you would have thought it requisite so to do?—Certainly.

1964. There is a curious matter respecting the water to which I would draw your attention, viz., that on the 15th September the water company ceased to pump from the Tyne, and that on that day the mortality, which had been increasing steadily from six on the 1st of September, had risen to 106; that for the next four days the mortality remained at about the same figure, namely, 114, 103, 102, and 110; and that on the fifth day after they ceased to take water from the Tyne the mortality fell to 80, and from that time forth decreased as steadily as it had before increased. Do you conceive that to be a mere coincidence; or do you think we should be warranted in supposing any relation of cause and effect to have existed?—I think that most probably it is a coincidence. I believe all epidemics have their period of increase and duration; and then they fall away.

1965. Will you be good enough to favour us with your opinion as to the instance of the comparative immunity of the garrison?—I think that the men of the garrison were men in very robust health, and that therefore they would be comparatively proof against the disease.

1966. Less predisposed?—Less predisposed than the ordinary inhabitants. I believe I speak truly when I state that in the foot corps there had been no death during a long period before the epidemic. The surgeon is a friend of mine, and I remember his telling me that.

1967. Would you ascribe the immunity of the garrison wholly to that cause, namely, that the men were able-bodied and of robust health?—Certainly not.

1968. Would you attribute any share in the securing of that immunity to the precautionary measures of sanitary regulation, diet, and prompt treatment?—I think the sanitary regulations and prompt treatment would be a very effective means of warding off the epidemic.

1969. Will you favour us with your opinion on the question of the conduct of the Board of Health officers during the late epidemic?—So far as I witnessed the conduct of the officers of the Board of Health, I think they behaved like gentlemen, and did all they could to stay the progress of the epidemic.

1970. I should like to have your opinion fully?—I think they did all they could under the circumstances in which they were placed.

1971. Would you countenance any charges against them?—No, certainly not.

1972. Would you like to add anything to the evidence which we have already elicited from you?—I am not very sure whether you have asked any of the medical gentlemen

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who have been examined any question concerning the condition of the air at the time of the epidemic.

1973. We shall be happy to hear your opinion?—It appears to me that the prevalence of the epidemic greatly depended upon the condition of the weather at that time. The air was very close and hot, and appeared to the senses to be in a state most favourable to the spread of an epidemic.

1974. I suppose the influence of the weather on the health would be approximately constant for all districts of the town?—Yes.

1975. So that it would not, in any degree, tend to explain the disproportion of mortality between different localities?—Certainly not.

1976. Is it within your own knowledge that ague is a disease almost unknown in the infirmary now?—Yes. I have not seen a case from the neighbouring counties for some years. We see many, however, from the fens of Lincolnshire.

1977. Have you heard, or do you believe, that in former years it was exceedingly common?—Yes. I made inquiries into that point, and found that in former years it was.

1978. Do you think that such diseases as catarrh and rheumatism have decreased of late in an equal degree?—Certainly not in an equal degree.

1979. Supposing any one, from the rapid decrease of ague and the less rapid diminution of catarrh and rheumatism, should infer that the agricultural districts in the vicinity of Newcastle had improved in respect of drainage more rapidly than the tenements of the town of Newcastle, would you be disposed to confirm such an inference?—I am not sure that catarrh and rheumatism depend upon the drainage of the town.

1980. Supposing it should appear that in considerable districts of this town, built, as it is, almost entirely upon clay, owing to the absorption of the surface-water into the brickwork of the walls, the walls of living and sleeping rooms were not unfrequently damp both to the eye and to the touch, would you not consider that those were circumstances which would very materially tend to the causation of catarrh and rheumatism?—They would tend, undoubtedly, to catarrh and rheumatism; but the vicious habits of the people themselves would also tend very materially to the same results, independently of any such consideration.

1981. Then you would not countenance the idea that these diseases had been exclusively owing to the damp and unwholesome condition of the tenements of those classes?—Not altogether.

1982. Would you countenance it to any, and to what extent?—I certainly think they are very active agents in the production of those diseases, but that they are not the sole causes of those diseases.

1983. How far would you be disposed to countenance the conclusion to which I have alluded, namely, that these facts tend to prove that the town has not, in this respect, improved so fast as the country?—I think that ague is produced by the decomposition of vegetable matters in marshy districts; and I think that the diminution of ague, in fact the almost total disappearance of it as a disease, shows that the country districts have been very greatly improved indeed; but I do not think that catarrh and rheumatism would decrease in the same extent, if even you produced the same amount of improvement in the town.

1984. Not in the same degree?—No.

1985. Catarrh and rheumatism are not so distinctly and exclusively traceable to dampness of dwellings, as ague is to dampness of district?—No.

1986. Is there any other point upon which you wish to observe?—No.

1987. I see your name attached to the report of the medical committee of the Newcastle and Gateshead Sanitary Association, to Robert Rawlinson, Esq.; do you still entertain the opinions that were then expressed in that document; or are you sufficiently acquainted with it to be able to say whether you do or not?—Yes.

1988. You confirm these, as well as the reports of the medical institutions?—Yes.

JOHN SAMUEL PEARSE, Esq., sworn.

J. S. Pearse, Esq.

1989. (*Chairman.*) You are house surgeon to the dispensary of this town?—Yes; I am house surgeon to the dispensary, and medical officer to the fever hospital.

1989A. You have been connected with those institutions for some years?—I have been connected with them, in one way or another, about twelve years altogether.

1990. You would be disposed to express your concurrence in the truth of the statements and the accuracy of the opinions contained in the reports of those institutions?—Yes.

1991. You have heard Mr. Gibb state, that in his opinion the recent epidemic had not been due to importation?—I do not think it was. Not to an importation by body, but to contagion through the atmosphere.

1992. Has your practice led you out into the town at large, so as to render you familiar with the whole or any part of it?—Yes; it continually takes me out into the town. I am visiting about all parts of it constantly.

1993. What is your opinion of the state of the town, say on the 1st of August 1853, or of those districts of the town with which you were most acquainted in a sanitary point of view?—I think that they were much as usual. I did not see that they were any worse at that time than at previous times. They probably were in their ordinary condition—not a very good condition—in a sanitary point of view.

1994. In your opinion, was the sanitary condition of the town, at the outbreak of 1853, materially better than it was six years before that?—I think the state of the town has been better than it was when I remember it six years ago. I think I have seen improvement in the town.

1995. Are you comparing what it was six years ago with what it is now, or with what it was on the 1st of August 1853?—With what it was on the 1st of August 1853.

1996. In respect of details, would your familiarity with those districts suggest to you that the town was adequately sewered?—I do not think it is adequately sewered. I know many places which are not sewered that ought to be sewered, to be in a proper sanitary condition.

1997. Can you mention any such places within the limits of the ancient borough?—I know a place behind Blackett-street—a lane. I should think it was within the limits of the borough.

1998. And do you know Sandgate?—Yes.

1999. Do you know Pandon?—Yes.

2000. And Wall Knoll?—Yes.

2001. And All Saints generally?—Yes.

2002. With reference to house drainage, what is your opinion?—I think that that is not so good as it might be. I dare say it is as good as in the generality of towns, but it is not so good as it might be made.

2003. (*Mr. Bateman.*) In the poorer districts, does house drainage exist at all?—No, the filth is thrown out and runs off.

2004. (*Chairman.*) In going into the tenements in those districts, did you habitually or frequently find "kits" full of excrements in the rooms?—Yes, it was very frequently the case.

2005. And on the stair heads?—On the stair heads.

2006. And was it from such facts as those that you drew your conclusion that the town could not be, and was not, adequately sewered or drained?—I took it more as a proof of the want of places for the people to go to. There were no privies or water-closets, and they were obliged to make use of those utensils.

2007. You ascribed it to want of privy accommodation?—The want of privy accommodation. The same thing also exists in most other parts of the town. I would not confine my observations simply to those districts which have been mentioned.

2008. (*Mr. Simon.*) Have you performed, or witnessed the result of, surgical operations in those poorer localities?—No, we have very little to do with that. The dispensary is more a medical institution.

2009. (*Chairman.*) In your acquaintance with Sandgate, you would have had occasion to notice the way in which that "ancient city" is built—the general form of the construction of the houses?—Yes.

2010. Back to back, so as to have no thorough ventilation, and with such narrow chinks between front and front as almost to exclude the sun and air. What, then, is your opinion of such an habitual form of house construction?—I think it is very bad indeed.

2011. We have had very strong opinions expressed here upon that point?—I do not see that that applies to Sandgate alone. Other parts of the town are just as bad.

2012. (*Mr. Bateman.*) May Sandgate be taken as a type of the whole town, with the exception of some more modern streets and buildings?—I think Sandgate is rather clean compared with some other parts.

2013. (*Chairman.*) Opinions have been expressed here to the effect that no practicable alteration or improvement of a district so radically misconstructed could ever put it into a proper sanitary condition?—You could not put it into a model sanitary condition.

2014. (*Mr. Bateman.*) A desirable sanitary condition?—I think it would be very difficult to do that.

2015. (*Chairman.*) Without going into further detail, may I take it to be your opinion that there are considerable districts within the limits of the ancient borough, whose sanitary condition, in respect of sewers, drains, privies, ash-pits, scavenage, overcrowding, ventilation, and so on, is and was at the time of the outbreak in 1853 far from satisfactory?—Yes; that is my opinion.

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2016. (*Mr. Town Clerk.*) Are you aware of the precise bounds of the ancient borough?—I am not aware of the exact bounds; but there are certainly places to which all these remarks will apply.

2017. (*Chairman.*) Confining your remarks to what is within the borough, would you be of opinion that at the outbreak of cholera in 1853, the districts of Sandgate, Pandon, Wall Knoll, and thereabouts, Pandon Dean, and so on, were, in those points which I have just mentioned to you, in a far from satisfactory condition?—They were in a far from satisfactory condition.

2018. You had occasion, probably, as a medical man, to form an opinion upon the state of the water?—The water was what I call very bad,—I mean very bad in respect of quality. It struck me at once, on running it out of the taps in the institution, that it was very bad. It had a bad smell.

2019. (*Mr. Simon.*) What bad smell? Do you mean a smell of putrefaction?—A sort of stink; particularly in a bath, or where there was any extent of surface, you could smell it at once.

2020. A large volume of water, collected as in a bath, gave out an offensive smell?—Yes; I smelt it.

2021. Did it happen to you to taste the water?—I carefully avoided doing so.

2022. (*Mr. Bateman.*) Did anybody drink it at that time in Newcastle?—I think a great many people must have done so; they could not get sufficient water without; but we had a pant near to the institution. I believe they got all the drinking water from that.

2023. (*Mr. Simon.*) The establishment got its water from the pant?—Yes.

2024. Are we to understand you that you officially, as a resident medical officer there, made that arrangement, and dissuaded the inmates from the use of the Whittle Dean water; or was that accidental?—During the first part of the cholera I advised all in the institution not to take that water, but to use the pant water.

2025. Before that time had they used the Whittle Dean water?—We were in the constant habit of using the Whittle Dean water.

2026. And in consequence of this change in its quality you recommended its disuse?—Yes.

2027. Were there complaints made to you officially of the quality of the water?—No; I cannot say that there were any complaints made to me officially.

2028. By "officially," I mean by servants of the institution?—Friends and others in the institution, assistants and so on, complained to me of the water being so bad.

2029. Did they also complain of the smell of it?—Yes. I cannot speak from personal observation; but I was informed that it was worse in the Westgate district.

2030. Was complaint made in the institution of the taste of the water?—When I saw that the water was so bad, I immediately recommended that no one should use it, and I have reason to believe that not one in the institution did use it.

2031. You made no chemical examination of the water?—I did not. I had no time to do so.

2032. (*Chairman.*) Had you occasion to form any opinion with reference to the gas?—The gas is not at all satisfactory; it is not very good.

2033. Do you think that you can trace any appreciable bad influence on the public health from the use of it?—I cannot say that I can trace any appreciable effect; but I think that there may have been an influence at work.

2034. With reference to the conduct of the Board of Health officers, will you favour us with your opinion?—I am of opinion that the conduct of the Board of Health officers was very praiseworthy indeed. I believe that they did the utmost that they possibly could, under the circumstances in which they were called upon to act.

2035. Should you feel inclined to bring, or to countenance, any charge in any way inculpatory of them or their exertions?—No, I should not sanction any censure at all upon the officers of the Board of Health as individuals. I think that they exerted themselves to the utmost, so far as they possibly could. They were placed in peculiar circumstances, I consider; and this may have operated against them, and have prevented their exertions from being so immediately and so properly appreciated as they would have been under other circumstances. But, so far as they could, I believe that they were very solicitous, and did the utmost of their endeavours.

2036. (*Mr. Simon.*) To what circumstances do you refer as likely to have operated against them?—I think the state of parties in this town, and the feeling which existed, made it exceedingly difficult for any gentleman who was placed in the position of one of these officers to carry out his views with that vigour and decision and celerity with which he would have done had that state of matters not existed.

2037. (*Chairman.*) You think that that may have embarrassed and hampered them in the discharge of their duties?—I do think that it embarrassed them.

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2038. (*Mr. Simon.*) Did it happen to you, in respect of your office, to be brought into close relations with the gentlemen alluded to?—Yes, it did. At first I was not brought much into personal contact with Mr. Grainger, but I made a point of attending all the meetings of the board of guardians, with a view of seeing and ascertaining all that was going on under their directions, in order that I might work the institution with which I was connected in such a manner as to co-operate with them as far as possible, and to render it as useful as possible under the circumstances; and during that period I could see very clearly that there was a trammel. There was at first a want, as I may call it, of a properly organised co-operation between us. That I could scarcely blame any person at all for, under the circumstances. Considering the suddenness of the outbreak, I think that things fell into order, perhaps, as quickly as could be expected.

2039. (*Chairman.*) Adverting to the circumstances then in operation, would it not have been exceedingly difficult at that time to have secured the co-operation of the medical body generally?—Yes; I have a very strong opinion upon that point. I think such a thing would have been totally impossible. What we required was a stranger, a man of great energy and decision, who would not care for anybody that was here, or any opposition that he might have happened to meet with.

2040. (*The Clerk to the board of guardians.*) Did Dr. Gavin come up to your views on that score?—I think he did. I was very well pleased with Dr. Gavin.

2041. (*Mr. Simon.*) Would it not take some time for a stranger to the town to make himself acquainted with this embarrassing state of affairs, to ascertain the existence of such difficulties, and get over them?—Yes. I think a perfect stranger to the town would first try to reconcile matters.

2042. (*Mr. Town Clerk.*) And would find it impossible?—And would find it impossible; and, consequently, the next step taken would be the one that was taken.

2042A. (*Chairman.*) Not to seek to reconcile them?—Not to seek to reconcile them so much, but to act more independently.

MR. GEORGE FORSTER, sworn.

Mr. G. Forster.

2043. (*Mr. Simon.*) You are clerk to the board of guardians for this union?—I am.

2044. You are cognizant, therefore, of their medical arrangements?—I am.

2045. Into how many medical districts is the entire union of Newcastle divided?—Five.

2046. Who are the medical officers?—The medical officer of No. 1 district is Mr. William Winship, No. 2, Mr. William Newton, No. 3, Mr. Henry Harvey, No. 4. Mr. T. F. McNay, and No. 5. Mr. John Sang.

2047. Should we, in your judgment, be able to collect from the evidence of those five gentlemen, an accurate notion of the sanitary conditions in which the poorer population of Newcastle subsist?—Yes, I should apprehend so.

2048. That their practice gives them daily opportunities of becoming acquainted with the conditions of the poorer localities throughout the whole union?—I have no doubt of it.

2049. That their evidence, taken in the aggregate, would convey to us a right impression?—A very correct notion of the condition of those classes of people whom they attend.

2050. (*Chairman.*) The five medical districts, I believe, are distinguished as St. Nicholas and St. John's, All Saints West, St. Andrew, All Saints East, and Westgate; is that so?—That is so.

WILLIAM WINSHIP, Esq., sworn.

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2051. (*Chairman.*) You are medical officer for one of the districts of this union?—Yes; the No. 1 district.

2052. Does that include St. Nicholas and part of St. John's?—Yes.

2053. (*Mr. Simon.*) You have about 100 acres of district?—I have.

2054. All of which lies within the old limit of the borough?—All of it.

2055. It is said at the last census to have contained a population under 15,000?—Yes.

2056. Can you form any estimate of what proportion of that population comes under your charge?—No.

2057. Is it what would be called a poor district of the town of Newcastle?—Yes, very poor.

2058. We should be glad to have your evidence as to the condition of the poor in that district, and first of all as to the matter of their lodging. Are the houses generally packed close together?—Very closely together.

2059. They are let in separate tenements?—They are.

2060. Is it the general arrangement among the poorer classes in that district that one family has one room to itself?—Yes, that is the rule.

2061. Does it often happen there that a family receives other lodgers to share its room with it?—Yes, it is frequently the case.

2062. Are the rooms which are so occupied furnished with a sufficiency of light an air?—Very rarely indeed; the houses are generally very old and very dilapidated.

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2063. By dilapidated do you mean not weather-tight?—Not weather-tight.

2064. Is there ventilation through them?—Too much, I should say. The rooms are very low generally—the panes of glass in the windows are very frequently broken out.

2065. (*Mr. Town Clerk.*) There is plenty of ventilation?—Plenty of it.

2066. (*Mr. Simon.*) Do you mean that the flaws in the building will let in the wind, or that the houses are so constructed as legitimately to afford the means of ventilation?—Not legitimately.

2067. Are they put so closely together as to make it difficult for air and sunlight to get access to them?—In many parts of my district neither sun nor wind can get to them at all.

2068. (*Chairman.*) Can you mention any particular places?—The courts at the head of the Side, Mill entry and Clogger's-entry.

2069. (*Mr. Simon.*) How are the poorer classes in your district off for privy accommodation?—Very badly indeed; there is hardly a privy.

2070. Do you know, among the parts inhabited by the poorer classes, any case of a house having a privy to itself?—It would be quite an exception in St. Nicholas' parish, if there were such an arrangement.

2071. What steps are taken by the inhabitants, when they have to obey the calls of nature?—The male part of the population go to the public privies, if they are not too lazy, and the females and children use utensils, and pour the contents of these utensils down the large gratings in the street.

2072. (*Chairman.*) In case of sickness, I suppose all parties must use utensils within the dwelling?—Yes.

2073. (*Mr. Simon.*) Are these utensils emptied after each use of them?—Certainly not; they are allowed to stand from twelve to twenty-four hours in the rooms.

2074. To be emptied at whatever time may be most convenient for the people?—Yes, they generally do it night and morning.

2075. You say that the male part of the population has recourse to public privies?—Yes.

2076. Are there many public privies in that locality?—There are five public privies in my district, I find.

2077. How many sittings are there in each?—There is one at the high bridge where, I should think, eight people might sit at once, and the same number in the one in St. Nicholas' churchyard, and in that in the Castle Garth I should think a dozen.

2078. You speak rather doubtfully to the number. Are there not separate stalls?—No, there are no separate stalls.

2079. They sit side by side, like persons in an omnibus, without any separations or partitions between them?—Yes.

2080. Are these places cleanly?—The privy in the Castle Garth is very tolerable, but the other two are exceedingly bad—exceedingly offensive.

2081. Do you believe that a decent working man would willingly go there?—He must of necessity, unless he used a utensil at home.

2082. (*Chairman.*) It is Hobson's choice?—It is Hobson's choice. I may state that in the large manufactories they generally have a privy for the accommodation of the workmen.

2083. (*Mr. Simon.*) During their working hours?—Yes.

2084. (*Chairman.*) When you say that the state of these places is bad, do you mean that it is bad occasionally, or that constantly and generally it is bad?—Constantly; the smell is dreadful.

2085. (*Mr. Simon.*) What ash-pit accommodation is there in your district among the poorer houses?—There is none.

2086. What then is done to supply the absence of ash-pits?—If it is not convenient for the corporation cart to take it away, it is left in the courts—it is just thrown down in any corner of the court.

2087. In the case of the public privies of which you speak, do they open on to ash-pits?—No.

2088. Do they run into drains?—They run into the common sewer.

2089. Is the supply of water in your district good?—Yes, the supply of water is very good.

2090. Do most of the poorer houses have a separate supply—a tap to themselves?—No; they have stand-pipes in the courts.

2091. Do you believe that that is sufficient accommodation for the people there?—No, I do not; but there are also pants in different parts of the town, where they generally can have water by going for it.

2092. (*Chairman.*) What distance do you think, on the average, they have to go?—I should think one hundred yards.

2093. (*Mr. Simon.*) Take the quality of the water distributed there, is it well or ill spoken of in the district?—With the exception of the time between July and October last year, the water was of very good quality.

2094. What was its condition then?—Very bad, exceedingly so.

2095. Have you more to say of it, than that it was discoloured?—It was very offensive both to smell and taste.

2096. Do you say that of your own knowledge?—Of my own knowledge. At the same time I may mention that I had some water (when the Whittle Dean water was so bad) brought from Blackett's pant, and it was equally offensive—that is one of the public pants in the town, behind Blackett-street.

2097. (*Chairman.*) Is that supplied by the Whittle Dean company or by a subterraneous source?—By a spring.

2098. (*Mr. Town Clerk.*) That must have been the state of the atmosphere?—Yes.

2099. Because the water in Blackett's pant is the finest water that we have?—It is, generally speaking, very good water.

2100. (*Mr. Simon.*) As regards the cleansing of the public ways, and the courts and alleys in your district, does that appear to you to be diligently performed?—No; the courts and alleys are in a very neglected state.

2101. Speaking of the period before the outburst of this last epidemic, say down to the first of September, how often should you think that the courts and alleys were cleansed?—I can hardly tell. They ought to be cleansed night and morning; the people are generally so negligent of cleanliness, that they toss all kinds of excrements into the courts. Generally speaking, the owners of the property have kept a person to sweep them out once in the day; but I believe that was not well attended to.

2102. Did it often happen to you, in passing through them, to see them in a cleanly state?—Almost never.

2103. (*Mr. Town Clerk.*) Are they public thoroughfares?—No.

2104. (*Mr. Simon.*) Are they open to foot passengers?—They are blind entries, there is no passage through them at all, they are only used by the inhabitants of the entry. Of course any one can go into them.

2105. (*Mr. Town Clerk.*) There is no public thoroughfare through them?—None.

2106. But any person going to a house in the entry may go in and go out?—Of course.

2107. (*Mr. Simon.*) Are there many of the rooms, inhabited in the way you have mentioned, that are themselves dirty foul rooms?—A great number.

2108. You have mentioned crowding, defective ventilation, insufficient cleansing of courts, absence of ash-pit accommodation, absence of privy accommodation, badness of water in the autumn, and dirty rooms; have you had occasion to make representations on any of these subjects to any persons in authority in the town?—I do not know that the authorities of the town have any command over private property; but the inspector of nuisances had frequent notice from me that such nuisances did exist.

2109. Is the inspector of nuisances appointed by the board of guardians?—By the board of guardians.

2110. To him you have frequently complained?—Yes.

2111. Have you complained to the board of guardians itself?—During the time the cholera was raging here, we were requested to give notice of any nuisances that we might meet with.

2112. But before that period?—Not before that period.

2113. Are you cognizant of any bye-laws made by the town council of Newcastle for regulating the duties of scavengers and regulating the management of public privies?—I am not.

2114. Or of any rules for cleansing filthy and unwholesome dwellings?—Yes, I was cognizant of that fact.

2115. Have you seen a copy of any such rules?—I have not seen a copy.

2116. How did you inform yourself what the rules were?—I merely know that the corporation have the power of white-washing dwellings, if it is necessary, and making the owners pay for it.

2117. (*Chairman.*) And those were put in force?—I believe in a few cases in my district they were.

2118. (*Mr. Simon.*) Before the month of September last?—No; nothing previous to the month of September last.

2119. Nothing previous to the month of September, to your knowledge, was done in the way of cleansing filthy and unwholesome dwellings?—No.

2120. (*Chairman.*) Since the time of the Irish fever?—Not since the time of the Irish fever.

2121. At that time there was, also, something done?—Yes.

2122. But in the interval between the two epidemics you are not aware of anything having been done?—I am not aware of it.

2123. (*Mr. Simon.*) From your knowledge of the poorer localities in your district should you believe that any rules were in operation for cleansing the filthy and unwholesome dwellings?—No.

2124. Can you speak of any other than the lower dwellings in your locality; do you know pretty generally the condition of the other houses there?—Yes, generally.

2125. Do they seem to be well provided with privy and ash-pit accommodation?—No; very badly indeed.

2126. Are the privies generally supplied with water or without water?—Without water.

2127. The privies of private houses?—They are not supplied with water.

2128. How are they arranged?—The ash-pit and privy communicate one with the other.

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2129. Are you aware of any regulations for the emptying of those ash-pits and privies?—No.

2130. Are you aware whether swine are kept within your district; in any parts of it?—Pigs are not kept now nearly so frequently as they used to be. A bye-law relating to pigs was put in force two or three years ago.

2131. Are pigs still kept in any part of your district?—Not that I am aware of.

2132. Are there any slaughter-houses or knackers' yards in your district?—Yes; the principal slaughter-houses of the town are in my district.

2133. Public slaughter-houses?—Yes.

2134. Under regulation of course?—Under regulation.

2135. Are there any private slaughter-houses?—There are.

2136. Are they under regulation to your knowledge?—I am sure I do not know. I am speaking of the slaughter-houses in Dispensary-lane, Low Friar-street. I do not know whether they are under regulation or not.

2137. Are they complained of as nuisances?—No.

2138. You have given certain descriptions of the poorer localities in your district; would Castle Garth answer to the general description you have given?—Yes, it would.

2139. Would Cloggers-entry, Side, answer to the general description you have given?—It would.

2140. Would Dawson's-court answer to the description?—They are a better class of houses in Dawson's-court.

2141. Provided with privies?—No.

2142. Provided with ash-pits?—There is one ash-pit common to the whole of the inhabitants of the yard, and a privy adjoining; and there is a drain from the ash-pit which passes beneath the houses where cholera prevailed to so great an extent.

2143. That is a favourable specimen of the district?—The houses are better.

2144. (*Mr. Town Clerk.*) Better than those in the Mill-entry?—Yes.

2145. (*Mr. Simon.*) Do you mean that they are less crowded, or that they are better constructed houses?—Better constructed houses; more newly built, and less dilapidated.

2146. Do you believe them to be in a good sanitary condition?—No, I do not.

2147. Does the conjunction of privy, ash-pit, and drain make a stink there?—A horrible smell—fearful.

2148. Is that horrible stink much complained of by the inmates?—Very much.

2149. Does Orchard-street answer to the general description which you gave?—Yes; to a certain extent it does.

2150. In what particulars would the variation chiefly consist?—Orchard-street is a wider street.

2151. Let in tenements?—There are not a great number of houses in it, but the principal part of the houses are let in tenements.

2152. Would South-street answer to the description you have given?—South-street is a better street inhabited by a better class of artizans.

2153. Do they have houses to themselves?—Two rooms, generally.

2154. Have you any notion of what the wages may be of the class of people who live there?—I should think about 20*s.* a week.

2155. Have they privies on the premises?—Generally there is a privy, which is common to a certain number of houses.

2156. And that again in combination with an ash-pit?—Yes.

2157. Does Forth-street answer to your general description?—No; the houses there are a better class of houses again; one family occupying the whole house, generally speaking.

2158. Forth Banks?—That is in my district; that is a horrible place.

2159. Does it belong to the better or the worse specimens of the district?—There are both classes of inhabitants there; but it is as bad a place as is in my district—Waller's tenements in the Forth Bank especially.

2160. The Close?—The Close will answer to the general description I gave.

2161. Pudding Chare?—That will answer the description, too.

2162. So that Orchard-street, South-street, and Forth-street would present exceptions in respect of being more widely built and giving better ventilation?—Yes.

2163. And presenting a better class of houses?—Yes.

2164. And having, at all events, for each group of houses an accessible privy and dust-bin?—Yes.

2165. Do you believe these best specimens of the poorer localities in your district to be in a wholesome state?—Yes, pretty well.

2166. With an open privy and dust-bin?—Generally speaking the open privy and ash-pit are apart from any dwelling-house—for instance, in a square of houses the privy is on one side, probably not near a dwelling-house, and the other houses are quite away from it.

2167. Was there much cholera in Orchard-street?—Yes, there was a good deal.

2168. To what did you attribute it in that locality?—To the dirty condition of the surface of the street; it was very much broken up by carts, a great deal of filth accumulated, and refuse animal and vegetable matter was thrown on to the surface of the street.

2169. In these localities, where a single privy exists for the use of a group of houses, do they still in your judgment find that an insufficient accommodation; and do they still throw excrements in the open way?—Quite insufficient.

2170. So that even in these places, Orchard-street, South-street, and Forth-street, there was that filthy condition of the surface?—Yes, but not in Forth-street so much.

2171. Was there much cholera in Forth-street?—Not to any great extent.

2172. Have the houses in Forth-street back ventilation, or are the houses back to back?—They are single houses; not back to back.

2173. With back windows?—With back windows.

2174. Have they yards?—That I cannot speak to.

2175. Did the fact that you had a less mortality in Forth-street than in these other places which you have specified, taken in conjunction with the fact that the condition of those houses is better than that of the other houses mentioned, suggest to you any conclusion?—The inhabitants were more cleanly also.

2176. And the locality more cleanly?—And the locality more cleanly, and there was better food.

2177. Did you infer that the difference of cleanliness had a bearing on the difference of cholera?—Certainly.

2178. (*Chairman.*) With reference to the conduct of the officers of the Board of Health we shall be glad to have your opinion. You were thrown into official communication with them, were you not?—I was.

2179. We shall be glad to hear your opinion?—I was satisfied that the medical officers of the Board of Health exerted themselves very much indeed, and I dare say were night and day occupied in making the necessary arrangements. The attack of the disease came on so suddenly, that it almost baffled any human exertion.

2180. Would you be inclined to sanction any charge or inculpation of them whatever?—No, I should not.

2181. And from your official relations with them you were bound, so to say, to be fully cognizant of their conduct?—Yes.

2182. (*Mr. Newton.*) Did you enjoy during the epidemic full opportunities of ascertaining from day to day the services performed to the town by the Board of Health officers?—I was cognizant of everything that went on up to the 14th September; and although I was unable to be out of the house myself for some days after that, I heard everything that was going on from the house-to-house visitors.

2183. (*Chairman.*) How many days were you prevented from going out of the house during the prevalence of the cholera?—I think ten days or a fortnight.

2184. Are we fully in possession of your opinion; or have you anything further to add on that point?—Nothing further on that point.

2185. Is there any other point on which you would like to observe?—There is one particular part of my district which seemed to be the centre of the cholera poison; and this was an old water-course which had been cut off at two points by the new drain in Clayton-street, and again by the new drain and sewer in Collingwood-street.

2186. (*Mr. Simon.*) It had been cut across in the construction of new sewers?—Yes. It came down Monk-square into Low Friar-street; but the water there now goes into the drain in Clayton-street.

2187. (*Mr. Town Clerk.*) Its communication with the Friars is stopped, and therefore it has a new commencement?—Yes.

2188. (*Chairman.*) Let us understand what you think were the bad results of that?—In Monk-square there is one of those horrible filthy grates, which is used by the inhabitants for the deposit of their night soil. There was a mortality of one in six there.

2189. (*Mr. Town Clerk.*) In Monk-square?—Yes.

2190. (*Chairman.*) A mortality of one in six in the whole population of Monk-square?—Yes.

2191. The cutting off of this water-course, to which you allude, had led to a stagnation of water and filth in certain points?—Yes, in certain points. The stream of water was cut off at Clayton-street, and at Collingwood-street, and it is in consequence of the runner of water being cut off at those points—at Clayton-street and Collingwood-street—that at that part below Collingwood-street, coming down to the head of the Side, it is stagnant.

2192. (*Mr. Simon.*) If I understand you rightly, then, there were two distinct things of which you complain—a filthy grating in Monk-square, and a stagnation of fluid at a lower place?—At the head of Clogger's-entry, Side.

2193. Then the worst spot in your district for cholera was in Monk-square, and in Monk-square there was a great nuisance excited by a grating covered with excrement—is that your point?—Yes, 20 died out of 119 inhabitants.

2194. In your judgment, was that the filthiest as well as the most unhealthy spot in your district of the town?—Decidedly.

2195. Did it stink?—It did.

2196. Were the houses very close to this grating?—There was a space thirty yards square, I should think, and the grate is at the entrance of the square.

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2197. The houses are not capable of ventilation in other directions; they have no back windows?—The backs of those houses are not ventilated.

2198. How many houses are there?—Seven.

2199. Including three houses opening into Low Friar-street?—Yes.

2200. Containing how many inhabitants?—119.

2201. And there were twenty deaths?—Yes.

2202. And how many cases?—The whole of the inhabitants suffered.

2203. You do not mean that they all suffered from cholera?—No; but, more or less, they all suffered. They were all choleraic.

2204. Did the inmates of those houses complain, one and all, of the stink from this grating?—Yes.

2205. (*Mr. Town Clerk.*) Monk-square is a private entry?—Yes.

2206. It is not a public street?—No.

2207. (*Mr. Simon.*) Is it paved?—No.

2208. Did the filth on the grating there accumulate from day to day, so as to get more and more?—It was almost always in a very bad condition.

2209. Was the open area of the square likewise foul in the same way?—Not so much so. The area of the square contains an old ash-heap.

2210. What about Clogger's-entry?—Clogger's-entry had a mortality of one in seven.

2211. (*Chairman.*) Can you give us the exact numbers?—Seventy inhabitants and ten deaths.

2212. (*Mr. Town Clerk.*) What was the character of the inhabitants of Clogger's-entry and Mill-entry?—Chiefly Irish.

2213. (*Chairman.*) How many houses are there in Clogger's-entry?—I should think seven.

2214. (*Mr. Simon.*) The ventilation of those houses you have spoken of already. It was in that locality, also, that there was stagnation in a drain, or old water-course?—Yes.

2215. For how long did that obstruction continue?—I should think it was continuous.

2216. (*Chairman.*) Has it been so for years?—It is only lately that I have had occasion to notice it.

2217. For how long?—Four or five months past.

2218. (*Mr. Simon.*) Did you know of its existence before the time of the cholera?—No.

2219. Was it during the prevalence of the epidemic that your attention was first directed to it?—It was.

2220. (*Mr. Bateman.*) Is Clogger's-entry also a private entry?—It is.

2221. (*Mr. Simon.*) What privy accommodation is there for the inhabitants of Clogger's-entry?—One privy.

2222. Does it open into this obstructed water-course?—Yes.

2223. It communicates with the stagnant fluid which you have spoken of?—Yes.

2224. Have you anything further to say on such points?—There is another point at the head of Tothill-stairs. There are three cottages at the top of that. There was a mortality of four out of six.

2225. What was the condition of those premises?—At the end of the row of cottages there is one of those filthy grates, and there is the drain passing under the cottages.

2226. The drain communicating with that filthy grating?—Yes, with the grating.

2227. Have they any privy for their accommodation?—I believe there is one now.

2228. Were those four persons who died grown up persons?—Yes.

2229. Old people, or in middle life?—Two were old people.

2230. Did they complain of the stink?—Very much indeed.

2231. Have you any opinion in respect of these three places, as to whether the nuisances which you have there specified were the cause of the deaths of those persons?—I cannot exactly answer that question. It is difficult to say.

2232. Is it your professional opinion and belief that those persons died from an aggravation of the epidemic influence in that district by these nuisances?—I hold very strong opinions as to the effects of those privies and those gratings.

2233. (*Chairman.*) Generally?—Yes.

2234. (*Mr. Simon.*) And as respects these cases particularly, do you believe that the death of these persons was occasioned by an aggravation of the epidemic influence in that locality by the nuisances you have specified?—I do.

2235. (*Mr. Town Clerk.*) Mill-entry and Clogger's-entry, the Castle Garth, and places around, of which you have spoken, are a very ancient part of the town?—Yes.

2236. Chiefly inhabited by the low Irish? They are.

2237. You know a little of the habits of these people?—I do.

2238. If you cleaned their houses for them, how long would they let them remain clean?—They are certainly very dirty in their habits.

2239. (*Chairman.*) Supposing a proper privy and ash-pit had been provided for each of the houses in these places, do you think you would have found excrement lying about the ground, or do you think that the condition of the locality would have been equally filthy, within any short time afterwards?—I do not.

2240. Then you think that the filth of these places was dependent not so much on the filthy habits of the people, as on the want of privy and ash-pit accommodation?—I think so.

2241. (*Mr. Bateman.*) When you said that four out of six persons died, how many inhabitants were there altogether in those three cottages at the top of Tothill-stairs?—Six. There is a building close behind with fifty-two inhabitants in it which had not a single case of cholera.

2242. (*Chairman.*) What building is that?—It had been converted into tenements, and a dust-bin and water-closet had been supplied.

2243. That house had a water-closet attached to it, and a dust-bin, one separated from the other?—Yes.

2244. Would you ascribe the comparative immunity of the inhabitants of that house to that cause?—Yes.

2245. You think that the filth of the one place led to the mortality there, and that the comparative cleanliness of the other led to its exemption from cholera?—Yes.

2246. Have you any other point to remark upon?—Dawson's-court has been mentioned before. There were sixty-four inhabitants and nine deaths. Only one side of the court was affected by it.

2247. What was the difference between that side and the other?—In consequence of a drain from the privy coming close to that side.

2248. Further confirming you in your opinion, as to filth and mortality by cholera generally going together?—Yes.

2249. Were they Irish people?—Most of the inhabitants were English.

2250. (*Mr. Town Clerk.*) Dawson's-court, I think you said, was a private court?—Yes. There was only one death in Museum-lane, and that was in a room immediately above an ash-pit and privy.

2251. How many inhabitants are there in Museum-lane?—I should roughly suppose about thirty.

2252. (*Mr. Simon.*) You mentioned that in Dawson's-court, out of sixty-four inhabitants, there were nine deaths?—Yes.

2253. That was in the whole court?—Of course, in the whole court.

2254. But the deaths happened only on one side?—There were sixty-four inhabitants of that side of the court.

2255. (*Chairman.*) What was the condition of the houses in Museum-lane, with the exception of the one where the death occurred?—The houses were very good.

2256. With decent accommodation?—With decent accommodation.

2257. Were there any of them with very bad accommodation?—This one room.

2258. But excepting that one room?—The others were decently accommodated.

2259. (*The Clerk to the board of guardians.*) Do you recollect when you first reported a case of cholera to the board of guardians?—The first case occurred to me on the 4th of September—I reported it on the Monday.

2260. Do you remember, almost immediately upon your making that report, receiving a communication from me?—I do.

2261. Were you by that communication informed that the relieving officers were to provide all the necessaries and clothing in every case of cholera which occurred?—Yes.

2262. Is it within your knowledge that the same communication was made to Mr. Newton and the other medical officers?—That I do not know.

2263. Are you acquainted with Mr. Furness?—Yes.

2264. Have you, at any time during the epidemic, had any conversation with him touching the supply of clothing and other necessaries to the poor?—Not with Mr. Furness.

2265. He never asked you?—No.

2266. Nor complained of any want on that score?—No, I do not recollect Mr. Furness doing so.

2267. It is within your own knowledge that the relieving officers, in every case where you made an order for clothing, promptly supplied it?—Invariably.

2268. (*Chairman.*) You have no reason, I suppose, to doubt that the instructions given to yourself were also given to others in the same official position as yourself?—No.

2269. (*Mr. Town Clerk.*) And that it was generally known that it was so?—Exactly.

2270. (*The Clerk to the board of guardians.*) Do you happen to know whether there were any public notices placarded on the walls?—I do.

2271. Were they not extensively placarded?—Very extensively.

2272. Would not, therefore, an ordinary observer, if not very fully occupied, have been able to inform himself as to where the relieving officers were to be found?—I should think so.

2273. (*Chairman.*) Would you countenance the opinion that any unusual secrecy was indulged in with reference to the arrangements made by the local authorities under the circumstances?—Quite the contrary.

2274. You think that there was publicity?—Great publicity.

W. Winship, Esq.

23d Jan. 1854.

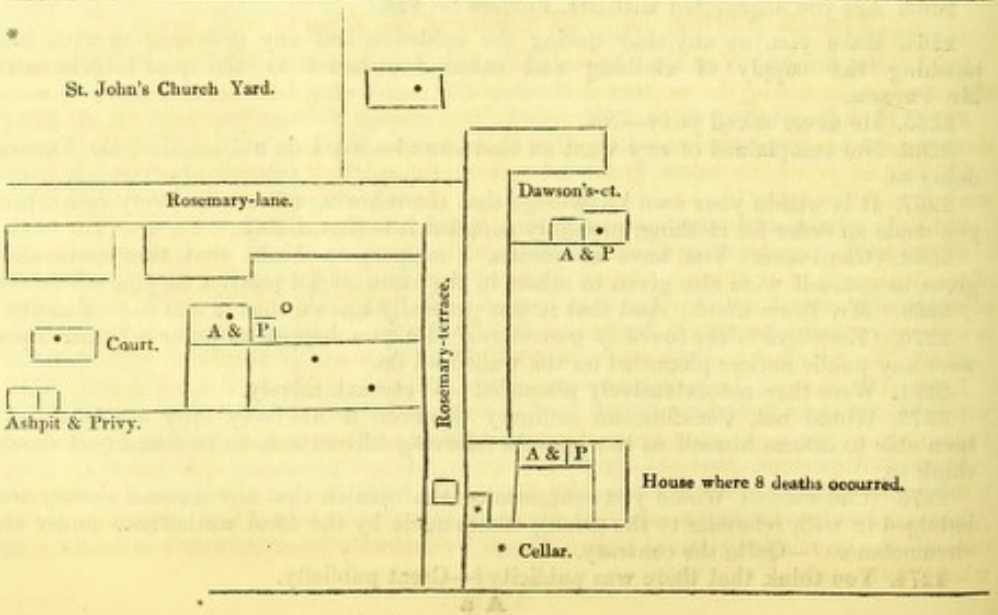
The witness afterwards handed in the following paper, containing further details as to the connexion, in several instances, between the virulence of the cholera and the presence of local predisposing causes:—

STATEMENT of the prevalence and fatality of the CHOLERA in STREETS without Privy, Ash-pit, or Grating used for the deposit of Excrements.

Bailiff-gate.—Very trifling diarrhœa. One fatal case in a house which adjoins public urinal.
Castle-stairs.—Ditto.
Drury-lane.—Ditto.
St. John's-lane.—Ditto.
Denton-chare.—Disease very prevalent; three or four fatal cases.
This street forms the northern boundary of the now stagnant water-course which passes through the district, between the head of the Side and Westgate-street.
Cross Keys-entry.—Eighty-nine inhabitants; disease very slight. Two fatal cases occurred in rooms built over a private privy.

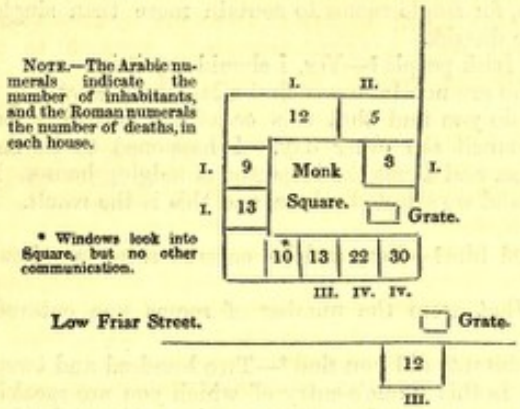
STATEMENT of the prevalence and fatality of CHOLERA in COURTS and ENTRIES having an Open Privy and Ash-pit (communicating), common to the Inhabitants of Tenemented Property.

Museum-yard.—One fatal case in room above the privy; disease slight.
Dawson's-court.—Severe diarrhœa on two sides of the court; on the third side, along which a drain passes from the ash-pit, the houses were occupied by about sixty-four inhabitants, who complained much of an offensive smell arising from the cellars; nine fatal cases.
Clogger's-entry.—The privy here communicates with a stagnant offensive open water-course; seventy inhabitants; ten deaths; and if the people inhabiting the rooms fronting the head of Side be included, would be thirteen deaths in about 108. There are two grates opposite the entrance to this entry, which are much used for the deposit of every description of filth.
Pearson's-court (Westgate-street).—Two fatal cases in a large number of inhabitants occurred in houses adjoining two filthy, neglected privies.
Watson's-court (Stowell-street).—Four in sixty. In addition to the filthy neglected privies, a sewer grating, used for the deposit of night-soil.
Chamber's-court (Newgate-street).—Sixty-one inhabitants; nearly all suffered; two deaths. A tanyard opens into the court at the top.
Allen's-court.—Only one family suffered severely, and they occupied a room immediately adjoining the privy common to the court.
Rosemary-lane.—Disease very slight in houses facing St. John's churchyard, but very severe in the court behind, where the privies are situated; four fatal cases.
Rosemary-terrace.—Eight fatal cases of cholera in one house, occupied by thirty-one people. There is an open ash-pit and privy in the yard, which is small; also a grate in front of the house door, which was also used as a depot for excrements. The bottom of the sewer with which this grate communicates is above the level of the cellar of this house, which had been closed up for some years. On this being looked into, it was found to contain from two to three feet deep of stagnant very offensive putrid puddle. (*Vide* Q. 7113–7125, *post.*)
West Wall Cottages.—Mortality five in forty-seven. The liquid oozing from the common privy passes along an open channel in front of the houses to a large grate, which is used as much for the deposit of excrements as the filthy, disgusting privy.



STATEMENT of the prevalence and fatality of CHOLERA in PLACES having Sewer Grates used for the deposit of Night soil, &c.; but no Privies. *W. Winship, Esq.* 23d Jan. 1854.

Bankside (Castle Garth).—Severe choleraic disease; seventy inhabitants; two deaths.
Castle Garth.—Tolerably healthy. Six deaths occurred in the immediate neighbourhood of two very filthy grates. Three deaths close to an ash heap, used as a depot for night soil. This locality—the Raft Yard—has a small population not exceeding thirty.
Mill-entry.—Seventy-five inhabitants all suffered; forty-three severely; two deaths; recoveries very slow.
Long Stairs and Courts.—249 inhabitants; four deaths; disease most severe near grates; and a large trap door for clearing the sewer.
Close.—Lowest level; comparatively free from disease.
Hanover-street.—Houses built into hill; thirty-three families; four deaths; diarrhœa very prevalent.
Backrow.—Diarrhœal form of disease very prevalent and severe. Mortality not large.
Monk-square and one house, in Low Friar street. Mortality twenty in 119.



Friar's-green.—A spacious area; one fatal case of cholera, and two fatal cases of scarlet fever a short time before in the only house having a privy and ash-pit, which is situated close to the dwelling-house door.
Stowell-street.—Houses small; two stories high, erected not many years ago. Each house, or nearly so, has a privy and ash-pit; but placed so near to the dwelling as of necessity to be a nuisance, quite independent of the length of time which elapses before being emptied; they are only so when they will contain nothing more. The diarrhœal form of the disease was very prevalent and severe; but the mortality was not very large.
Thornton-street.—In two houses adjoining each other, occupied by thirty-nine inhabitants, there were five deaths. These houses are so built, that the area of the two yards, in which the privies are placed, does not exceed five yards square.
Buckham's-yard in this street has no privy; one fatal case in forty inhabitants; diarrhœa very trifling.
Clayton-street, West.—Houses supplied with water-closets within the dwellings. Several fatal cases; but I do not know the ratio of mortality.
There are three courts in the Friars occupied by sixty-nine inhabitants, where the privies are situated at some distance from the dwelling houses. There was no disease here.

WILLIAM NEWTON, Esq., and member of the Town Council, sworn. *W. Newton, Esq.*

2275. (*Mr. Simon.*) You are surgeon under the Poor Law Board to one of the districts of this union, including the western division of the parish of All Saints?—I am.

2276. How long have you been surgeon to that district?—Nine years to that district; three years to another district—altogether about twelve years.

2277. And you have taken great interest in its sanitary condition?—Yes. I have worked night and day in those two districts ever since I was appointed.

2278. You have sixty-nine acres of ground in your district, I find?—I cannot tell that.

2279. And a population something over 17,000. Are you able to give us any estimate of what proportion of that population is under your charge as parochial surgeon?—The population is difficult to ascertain. At a rough guess, the population of All Saints' parish is somewhere about 30,000, I should say.

2280. The population of the entire parish?—Yes; upwards of 30,000.

2281. (*Chairman.*) Have you any reason to doubt that this statement, namely, that within your district there is a population of 17,400—is correct?—I think that is not correct. I should think the population is very likely to be about 25,000. It fluctuates a good deal.

2282. Within your district?—Yes. At some seasons of the year, before the Irish come into the town for harvesting purposes, that might be the true state of the district. Afterwards every lodging-house becomes densely filled, and it is almost impossible to compute the population; but at a rough guess I should say that you might estimate it at what I have stated.

W. Newton. Esq., 23rd Jan. 1854.

2283. Sometimes the population in your district would amount to as much as 25,000?—I think so.

2284. (*Mr. Simon.*) Are the poor among that population pretty generally spread over that district?—Nearly throughout the whole district, with some two or three exceptions.

2285. So that you have official occasion to visit all parts of the district?—Yes, nearly every part of the district, except one or two streets.

2286. We are anxious to ascertain your opinion as to the condition of the household accommodation of the poor in this district; and, first of all, we would ask you about their lodgment—as to matters of crowding and the like. Is it a frequent occurrence in this district for single rooms to be the lodgment of single families?—No; there are not many single rooms occupied by single occupiers.

2287. Do you mean that single rooms have more than single families within them?—Yes.

2288. Are there many cases within the district where the poorer families have two rooms or three rooms among them?—I do not think there are many cases.

2289. Do we understand you rightly that it is a frequent condition among the poorer population in this district, for single rooms to contain more than single families?—It is the usual condition of the district.

2290. Is it confined to Irish people?—Yes, I should say it is.

2291. Among those who are not Irish you find a less dense crowding of people?—Yes.

2292. To what extent do you find that this occasional crowding reaches?—I made a statement in the town council the other day. I happened to be down in Sandgate, attending a midwifery case, and I met the inspector of lodging-houses. I asked him to go through a lane with me, and we selected a lane, and this is the result. (*Here the witness handed in a paper.*)

2293. You accompanied him?—Yes; and he entered these premises and counted the parties.

2294. (*Chairman.*) What were the number of rooms you entered?—Twenty-three small rooms.

2295. How many inhabitants did you find?—Two hundred and twenty.

2296. (*Mr. Bateman.*) Is this Eddie's-entry of which you are speaking?—Yes.

2297. (*Chairman.*) What was the date of your visit?—The 20th of November 1853.

2298. (*Mr. Simon.*) You will adopt that statement as your own?—Yes; this is six weeks or two months after cholera had been here.

REPORT of PERSONS TAKING in LODGERS, having only ONE ROOM.
20th November 1853.

Where situate.	No.	Names of Lodging-house Keeper.	No. of Family.	No. of Lodgers.	Dimensions of Room. Lgth. feet.	Bdth. feet.	Hght. feet.	Rent per week. s.	d.	Number.	Remarks.	No. of cubic ft. of air for each Person.
Eddye's Entry, Sandgate.	1	James Flinn -	Mother, 1 child	6 lodgers, paying ½d. per night.	16	9	8	1	6	9	Room very dirty.	128
Ditto -	2	Dominick Cummins -	Wife, 2 children	8 lodgers, paying ½d. per night.	16	13	8	1	7	12	Ditto.	150
Ditto -	3	Rodger Flaharty -	Wife, 1 child -	6 female lodgers	16	9	8	1	6	9	Ditto.	128
Ditto -	4	Patrick Mackintire -	Wife, 1 child	9 lodgers -	16	13	8	1	9	12	Ditto.	150
Ditto -	5	John Dunbar -	- -	3 visitors - -	13	12	8	1	7	4	Ditto	312
Ditto -	6	John Dunbar - -	Wife - -	2 lodgers -	16	13	8	1	7½	4	Ditto.	416
Ditto -	7	Daniel Coganes -	Wife - -	10 lodgers, paying 3s. 9d. for their lodging per week	15	12	8	1	9	12	Ditto.	120
Ditto -	8	Robert Coneley -	Wife, 3 children	7 visitors -	14	13	8	1	8	12	Ditto.	121
Ditto -	9	Mary Timmings -	- -	14 lodgers or visitors.	14	13	8	1	8½	15	Ditto.	97
Ditto -	10	Thomas Cartey -	Wife - -	3 visitors -	13	12	8	1	6	5	Ditto.	250
Ditto -	11	Michael McCassay	Wife, 4 children	4 lodgers - -	-	-	-	1	8	8	Ditto.	–
Ditto -	12	Patrick Dockerty -	- -	5 visitors -	-	-	-	1	9½	6	Ditto.	–
Ditto -	13	Mathew Conner -	Wife, 1 child -	2 lodgers - -	-	-	-	1	8½	5	Ditto.	–
Ditto -	14	Christopher Taylor -	Wife, 9 children	3 lodgers -	14	13	8	1	9	14	Ditto.	104
Ditto -	15	Thomas McKay -	Wife, 2 children	11 lodgers or visitors.	14	13	8	1	8½	15	Ditto.	97
Ditto -	16	James McLarkey -	Wife, 1 child -	9 lodgers - -	14	13	8	1	8½	11	Ditto.	121
Ditto -	17	Patrick Barret -	- -	7 visitors -	13	12	8	1	9	8	Ditto.	156
Ditto -	18	James Murphy -	Wife, 3 children	6 visitors - -	—	—	—	1	7	11	Ditto.	–
Ditto -	19	Michal McDonald	4 brothers and 2 sisters.	— —	—	—	—	1	9	7	Ditto.	—
Ditto -	20	Walter Swift - -	Wife, 2 children	3 lodgers - -	—	—	—	1	7	7	Ditto.	—
Ditto -	21	Whinniford Barret	- -	16 lodgers -	—	—	—	1	6	17	Ditto.	—
Ditto -	22	Thomas Pardon -	Wife - -	3 lodgers - -	—	—	—	1	4	5	Ditto.	—
Ditto -	23	John Cuyan -	Wife, 1 child -	5 lodgers -	—	—	—	1	3	8	Ditto.	—

In the above twenty-three small rooms we found 220 people lodging.

RICHARD J. ACKRIGG,
Inspector of Lodging-houses.

I visited these Rooms accompanied by William Newton, Esq., Surgeon, and No. 117, Nicholas Buglass, on the night of the 20th November 1853, and found the above lodgers.

RICHARD J. ACKRIGG,
Inspector of Lodging-houses.

2299. Have you reason to believe that that represents a worse than average condition of that particular entry?—I have no reason to think so. I did not go down there for the purpose of visiting it.

2300. Are there many entries in your district in which you believe the crowding to be equally great?—I believe that in all Irish houses the same overcrowding prevails.

2301. And of such Irish houses, are there a great number in the district?—Yes, a very great number.

2302. Can you approach at all to an estimate of what amount of population may be living in that way?—I cannot do that, except by a very rude approximation. I have thought that perhaps there might be superadded to the occupiers of single rooms throughout the town, between five thousand and six thousand people—that is, scattered over these tenemented rooms; so that the population, which, according to the census, I believe, is somewhere about 88,000, might be five thousand or six thousand more.

2303. You think that these promiscuous lodgers and visitors are not counted in the census?—I think not.

2304. (*Chairman.*) Do you mean that they are habitually absent during the day, and present by night?—If you go to this entry during the day, you will find a different set of inhabitants from what you find at night. The beds are shaken down; they are always occupied by a certain number; but different people take their leisure at different hours of the day or night.

2305. More by night than by day?—Yes.

2306. (*Mr. Simon.*) What is the condition of the rooms that are crowded in this way, and the condition of the rooms of the poor generally throughout your district; are they well ventilated and well lighted?—There is no ventilation; the lighting is very bad; they are mostly situated within narrow alleys; and they are only lighted by a reflected light. The ventilation is very bad. When I made that visit with Inspector Ackrigg, he became sick in one of the rooms, owing to the horrible effluvia. It was most offensive; the smell of fæces and human sweat; the want of ventilation was most offensive.

2307. (*Chairman.*) In your presence he became sick, from the stench in one of the rooms?—In my presence. He retired to the door to vomit, and I was very nearly following him.

2308. (*Mr. Simon.*) Are there considerable parts of your district, to which the description you just now gave would apply, viz., that no direct light or sunshine can come to them?—A very great portion of my district. There is nothing but reflected light.

2309. (*Chairman.*) Has it ever happened to you before to feel ready to vomit in your official visits to these places?—Yes, I have frequently retired and vomited. During the fever epidemic it was a usual thing in the morning.

2310. (*Mr. Simon.*) On entering these rooms the stink has overpowered you?—Yes. During the time of the fever there might be ten, twelve, or fourteen people lying in a room, and two or three dead bodies amongst the living; and I have had to pick my steps over the dead to get to the living; and frequently I have felt sick.

2311. Has it happened to you to find on any occasion three dead bodies in a room?—It has upon an occasion which I have in my mind just now.

2312. Has it happened to you on more than one occasion to find two dead bodies in a room?—I have frequently seen two dead bodies in a room.

2313. To see three dead bodies in a room is, of course, so shocking a sight, that I may ask you whether you can call to mind to have seen that more than once?—I counted, in the beginning of September 1847, three dead bodies in a room, one morning when I went in to visit some patients at the head of Craig's-alley.

2314. Is the defect of ventilation in these places owing to an obstinate closure of windows by the occupants, or is it owing to such a construction of buildings in the courts, and alleys, and streets, as forbids ventilation?—Both causes. The alleys are so constructed that ventilation is defective, and the poor render that state of things worse by being disinclined to open their windows. I know that their windows have been broken by medical men to let the air in. I might add that I think that in winter their clothing is so bad, that they do not like to expose themselves to cold. In summer the ventilation is better.

2315. Can you mention any considerable exceptions to this condition of things among the poorer people in your district? Can you mention any block of houses, or any block of lodgings, of any kind whatever, where the poor people are decently housed?—No, I do not know in this town any place where the poor people are decently housed.

2316. How, in your district, are the poor people off for privy accommodation?—I do not know that the poor people have any privies at all. I think that they are almost entirely destitute of privy accommodation.

2317. How many privies can you recollect in your district?—There is a public privy at the end of the Swirle, and there has been a privy erected since the cholera occurred.

2318. We are anxious to know what was the state of things before the cholera?—There was a privy at the foot of the Swirle on the 31st of August that had been there for a long time. That was the only privy that I know of in that part of the town.

2319. (*Chairman.*) Were you intimately acquainted with the state of Sandgate as regards privy accommodation on the 31st of August 1853?—I think so.

W. Newton, Esq.

23d Jan. 1854.

2320. How many public, and how many private privies were there in that district at that time?—There was one public privy, and, to the best of my recollection, I think there were four private privies.

2321. Was there one in the Tyne brewery for the use of the hands there?—Yes, I think there is one there, and was then.

2322. Was there one in the Portland Arms, for the use of those resorting to that public house?—That was a water-closet, not a privy.

2323. (*Mr. Simon.*) Was there one in Half Moon-entry?—Yes.

2324. Was it public?—No, in a public house.

2325. (*Chairman.*) And one in a private house, erected by the owner?—Yes.

2326. Was the state of these three privies and one water-closet good and satisfactory?—I do not know much about them, except one.

2327. What do you know about that one?—It was carefully locked up, and nobody had any access to it except those for whom it was intended.

2328. Which was that?—The privy in the Half Moon-lane.

2329. (*Mr. Simon.*) Did the privy at the foot of the Swirle exist on the first of September, 1853?—Yes, it has been there a long time.

2330. To how many persons does it furnish what I suppose I may call sittings?—I do not know how many exactly. They are very hospitable; they allow any one to go in.

2331. Is it divided into separate seats?—Yes, there is a rude division.

2332. Extending to the top of the place, or merely like the arms of chairs?—No; you could pick your neighbour's pocket there if you liked.

2333. Is it in good condition?—It is a dirty, filthy place. There is a horrible stench.

2334. Is there an ash-pit in connection with it?—No.

2335. Do the labouring classes of your district seem willing to have recourse to this privy?—I have never asked them. I do not know their sentiments.

2336. (*Chairman.*) What is the population, in your judgment, of this district of Sandgate?—I think it is under 5,000.

2337. Of these 5,000 people, how many do you think were enabled to have recourse to the four private privies, including the locked-up one which you have mentioned?—You will find upon the New-road, which by some is called Sandgate, upon the east end of the New-road, east of the Wood-entry, there are a few houses, perhaps fifteen, that have privies. If you exclude the parties in those houses which do not belong to Sandgate proper, I should say that the people having recourse to the four private privies would only be the occupants of the houses themselves—that is, every one else would be driven to use the public privy. There is no other accommodation for them.

2338. If you were to compute that 100 persons resorted to each of those four private privies, would it be a fair computation?—No, 100 persons would not use them. I should say that, upon the average, you ought not to put down more than twelve for each private privy.

2339. Do you think that more than 100 persons altogether resorted to those four privies?—I should think not.

2340. Then, supposing the population of Sandgate to be under 5,000 people, and the number of persons resorting to the four private privies there to be under 100, would you say that as many as 4,500 people were obliged to have recourse to this one public one?—Far more than that; because, on the quay side, there is not only our resident population, but a large concourse of foreigners and sailors from various parts.

2341. (*Mr. Bateman.*) How many thousand persons would, in your opinion, use this public privy?—I would rather leave it indefinite. I cannot tell.

2342. (*Chairman.*) Are you quite confident that it must be above 4,500?—Yes; you cannot exactly estimate it without counting.

2343. And this one public privy, for a population at all events exceeding 4,500, I understand you to say was in an improper state?—Yes.

2344. (*Mr. Simon.*) Is this privy complained of by residents in the immediate neighbourhood as a stinking nuisance?—There is nobody in the immediate neighbourhood. I do not think the people do complain. In fact, in Newcastle, people very seldom complain of these things.

2345. Then we infer, from what you say, that the 5,000 persons of Sandgate are not at all sufficiently provided with privies?—Certainly not.

2346. What is the result of that defective accommodation?—The result is, that in those common lodging-houses you find that man, woman, and child (I will quote the language I used in writing to the *Times*) have to perform the acts of nature in each other's presence.

2347. They use vessels of one sort or another in their rooms?—They use a vessel here called a "kit."

2348. And that kit is subsequently emptied—where?—Into the lane—that is, by the great majority of people; but I may observe, that you have in Sandgate an aboriginal population, who carry their kits down to the river, and who are very clean.

2349. (*Chairman.*) How often do they carry their kits to the river, hourly or daily—It is done during dark. I never saw it done in daylight.

2350. (*Mr. Simon.*) Are they obliged, in the intervals between dark and dark, then, to keep these kits in their dwelling-rooms?—I expect they are.

2351. And on the occasions when you have found yourself sickened, or have seen other persons sickened, on entering such rooms, has the atmosphere which has produced that sickness been tainted with the stink of their kits?—Yes. You can generally detect it. The atmosphere is generally fæcal.

2352. In their rooms?—Yes, in the rooms of the overcrowded Irish.

2353. Is the atmosphere sensibly fæcal in the passages leading to their houses in the entries?—Yes, if you just put your nose into the corner of a street you will feel it.

2354. (*Chairman.*) Have you habitually, in your visits to these places, seen in room after room a kit more or less full of fæcal matter?—Yes.

2355. Habitually, in room after room?—In room after room.

2356. And where you did not see it in the room, did you frequently see it at the stair-head, or the stair-corner?—If I did not see it in the room, I saw it in the lane. It was sure to be near the dwelling.

2357. You saw it both in the rooms, and on the stairs, and in the thoroughfares?—Yes; in the public streets excrement was habitually scattered about.

2358. That was the rule, and not the exception?—The rule certainly.

2359. (*Mr. Simon.*) Do the persons resident in these districts complain of the inconvenience or of the annoyance to which they are thus put, and of the nuisance which arises from this diffusion of excrement in the streets?—The native population do. The Irish do not.

2360. (*Chairman.*) Have you habitually found fever present in these places, where this diffusion of fæcal matter in room, and in staircase, and in thoroughfare prevailed?—I have. Whenever fever has prevailed in the town, I have found it in these places.

2361. (*Mr. Simon.*) With this habitual distribution of filth upon the pavement, it is matter of a good deal of interest to know how frequently the scavenging is performed. Can you give us any information upon that subject?—Just now I dare say it will be performed very frequently. Scavenging used to be performed, I believe, in the lanes of Sandgate once a week. In those lanes which did not communicate with the main street, the *cul de sacs* I mean, it was never done.

2362. Before the eruption of cholera last autumn, how frequently was the cleansing performed in your district generally?—I think twice a week.

2363. Was there any difference as regards cleansing between the alleys which are thoroughfares and those which are *cul de sacs*?—Yes. I cannot say, about that time, whether there was or not; but it used to be the case that the *cul de sacs* were never cleansed.

2364. Have you ever seen the hose and jet used in those alleys for cleansing them?—Yes.

2365. Frequently?—No, very seldom.

2366. (*Chairman.*) At what time?—I saw some of them thus cleansed after cholera had invaded the town.

2367. (*Mr. Simon.*) Do you recollect to have seen it before that period?—I think I remember seeing it used in 1847.

2368. You can answer for its not being an habitual thing?—It certainly is not; it was very seldom used—once a year or so, to the best of my recollection.

2369. Is there, throughout your district generally, good accommodation in ash-pits?—No; the usual method, even in the better parts of the district, is to put the ashes into scuttles, and to have them emptied into the cart that comes round daily.

2370. Are kits ever emptied into the cart?—Certainly, the contents of the kit are expected to pass away into the cart.

2371. Do you believe that in many cases the cart is used for the contents of the kit?—Yes, I believe that a number of residents in these habitations do so.

2372. The original residents, as distinguished from the immigratory or Irish population?—Yes, the original residents in Sandgate are an extraordinarily clean population, and are well clothed; the houses are remarkably clean, they are good cooks, and live well.

2373. Do you speak particularly of the class of keelmen?—Yes; and I speak of the older residents altogether—the original residents that we had here before 1846, before we had such an immigration of Irish. Previously to the Irish fever, the Sandgate population was very different from what it now is.

2374. (*Chairman.*) The theory of scavenging I believe was that the cart went through the thoroughfares, and did not come into the courts, and lanes, and entries?—Yes.

2375. So that the kit, in order to be emptied into the cart, had to be carried out of the court into the thoroughfare?—Precisely so.

2376. Did any considerable part of the population of these courts carry out their kits in this way?—Yes, I think a few of the old population would—they must have done so; but a good many threw it into the area. That was the way in which all the inhabitants of those Irish lodging-houses disposed of their excrement.

2377. (*Mr. Simon.*) Does the cart go round now every day?—Yes.

2378. Do you know at what time?—I do not know. Just before cholera broke out I complained that it went round too late, about eleven o'clock in the forenoon in those denser parts of the town.

2379. (*Chairman.*) With reference to the ash-pit accommodation, did you find it sufficient?—Not by any means sufficient.

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2380. Did you find the ash-pits which you did meet with in a good condition?—No, they were nearly all in a bad condition; there was no regulation as to the removal of their contents. There was a difficulty, even amongst the higher classes, in getting the ash-pits cleared out.

2381. Supposing it should appear that in the year 1846 a local Act was obtained, authorising the town council, with a view to the preservation of the health of the inhabitants, from time to time to order all or any of the privies, ash-pits, and receptacles for manure and refuse within the borough, to be emptied and cleansed by the occupiers of the houses, under a penalty, would you consider that that power had been adequately put in force from 1846 to 1853?—No, I do not think it has ever been put in force. In fact I should say it is a dead letter.

2382. (*Mr. Simon.*) How is the water supply of your district?—A good many of the tenemented houses have water supplied to them, but rather defectively. The water is admitted into the house, but there is no sink, no means of getting rid of the refuse water; so that frequently, when water gets to a tenant high up stairs, it inundates the house.

2383. By his carelessness?—No; there is no waste pipe there to take the water away; nothing to prevent the droppings percolating and going down stairs.

2384. (*Mr. Bateman.*) The taps sometimes get out of order too?—Yes; and they very frequently burst.

2385. (*Mr. Simon.*) Do you believe that generally in your district the poor people have a sufficiency of water?—Yes; the people that I know best live very near the Tyne, and they have an abundant supply betwixt the Tyne and the Whittle Dean.

2386. Do you hear any complaints among the occupiers of tenemented property as to scarcity of water?—Not as to scarcity.

2387. Or do you observe any indications of want of water among them?—No, not as to quantity.

2388. Then as regards the quality, have you any opinion on that subject?—I think the water supplied to the town had been very bad for a long time—perfect puddle.

2389. During what time?—For about two months, I think, previous to August the 31st, 1853.

2390. (*Chairman.*) All July and August?—Yes; in fact during the whole of the summer and autumn it was very bad.

2391. (*Mr. Simon.*) You have used the phrase "puddle," do you mean it was thick?—It was thick; it was opaque.

2392. Had it any bad property beyond its opaqueness, that you perceived?—I thought it occasionally stank.

2393. (*Mr. Bateman.*) Did you drink it?—No, I never did for a long time.

2394. Did you recommend other people to abstain from it?—Yes.

2395. (*Mr. Simon.*) It was offensive for a long period?—Offensive both to the taste and to the smell.

2396. I should like to know your views, as a medical man, very accurately as to this taste and smell. Did it convey to you the impression that there was fæcal or decomposing animal matter of any sort in it?—My impression was that it contained sulphuretted hydrogen. I never tasted it, but I thought it had the characteristics of water charged with sulphuretted hydrogen.

2397. Did it have what would be called commonly a rotten smell—a smell of putridity?—Yes.

2398. Were there complaints made to you officially of its taste and smell?—In almost every house that I went into, the common question was—"What shall we drink? We "cannot drink the water." I think the poor people found that their health was deteriorated by the continual use, for ordinary and dietetic purposes, of this water.

2399. Do you believe that the water acted prejudicially on health?—Certainly I do.

2400. Will you mention to us some illustrations of your reason for forming that opinion?—I had found diarrhœa very prevalent for a long time, and I associated the prevalence of diarrhœa in the first instance with this badness of the water.

2401. How soon did that general prevalence of diarrhœa begin?—I think we had diarrhœa to a very unprecedented extent for about two months, speaking roughly, before the 31st of August: all August and all July we had diarrhœa, which began to prevail very extensively about the beginning of August.

2402. Did you deem it requisite, in the discharge of your professional duties, to caution people against the use of this water?—Invariably.

2403. In the case of those who had previously been suffering from diarrhœa, to whom you gave that caution, did you find any difference after any time?—Yes; I saw no fatal cases of diarrhœa until about the 31st of August; so that I concluded from that that the advice had been wholesome.

2404. Were you able, in any half-dozen cases, to watch the operation of the water in such detail as to say that, when it was discontinued, diarrhœa ceased, and when it was resumed diarrhœa began again; there being no other difference in the regimen or medical treatment of those persons?—I do not know such a case as would allow me to speak upon that point. I thought the water was bad, and I never permitted my patients to drink it again, if I could help it.

2405. Did it happen to you frequently, where you had given that caution to your patients, to have them tell you afterwards that the diarrhœa had ceased?—I do not remember any instance of that kind.

2406. So that you would not speak to more than a general impression, that the water had to do with purging?—I say that the water was physically offensive, and I associated diarrhœa with its use.

2407. It was such water as you would have expected to produce diarrhœa?—Certainly.

2408. Did your examination of the water take place at several taps?—Yes, it was shewn to me in several houses.

2409. Can you answer for having observed an unpleasant smell from it in several different houses?—Yes, I can.

2410. We have asked your opinion generally as to the lodging of the people in your district, and as to the light and ventilation they get; whether they are crowded—whether they have sufficient privy accommodation—whether they have sufficient ash-pit accommodation—and how they are off for water. We should be glad to know whether the general description you have given us would apply to Pandon?—Yes.

2411. Would it apply to Silver-street?—Yes.

2412. Would it apply to Blyth Nook?—Yes.

2413. Would it apply to Wall Knoll?—Yes.

2414. And to all those places equally, or nearly equally?—Yes.

2415. Would it apply to Craig's-alley?—Craig's-alley has been a good deal improved since cholera in 1849—since the Irish fever, in fact. Craig's-alley is better than it used to be.

2416. Do you consider it a proper place for human beings to live in at present?—I do not think it is, but it might be. It is placed in such a position that it nearly drains itself.

2417. Have the inmates of it privy accommodation?—No.

2418. Have they ash-pits?—They have an ash-pit amongst them, at the top of Mount Pleasant.

2419. Are they tenemented dwellings?—Yes, inhabited by the low Irish stick-makers.

2420. Are they overcrowded?—Yes.

2421. And dirty?—Yes, very dirty. In fact, I was there a day or two ago; it was very unpleasant. I saw excrement lying about in all directions, and had to pick my steps in getting up the lanes. I saw overcrowding, and all that sort of thing.

2422. The next place I need hardly, perhaps, ask you about, as that is about a type of your district—that is Sandgate?—I think you are wrong about Sandgate; I think that is the best part of my district.

2423. It has been given in evidence to us, from many quarters, that Sandgate for the greater part is unfit for human habitation?—I do not think so. I think that the houses in many of the lanes are old houses certainly, but many of them are placed at such an elevation, after you get to them, that you have a fine view of the river and of the shipping, and there is anything but a want of ventilation in the upper parts of the dwellings of Sandgate.

2424. Of some of them?—Of a great number of them.

2425. (*Chairman.*) We have understood that the houses in a great part of Sandgate are built back to back, with the fronts within a few feet of one another, so that the sun and wind never get to the houses hardly. Is that so?—I think the ventilation is not so very bad in Sandgate, as the wind blows from the river up the alleys. In certain directions you have a ventilation.

2426. (*Mr. Simon.*) But in many cases is not the way to the entries a covered way?—Yes.

2427. So that there would be very little current of air from the river in that case, would there?—I think the current of air would depend, not upon the entrance being covered, but upon the relative temperatures of the air upon the river and the air up the lane.

2428. The opportunities for ventilation which you have spoken of would probably be, however, confined to the topmost rooms of the houses, would they not?—No, I think that the lower parts might be tolerably well ventilated. I do not say that the lower rooms are the best rooms, or altogether fit for human habitation, but I mean to say they are a great deal better than the rooms in Wall Knoll, and Pandon, and Pandon Dean, and Dog Bank, and Silver-street, and various other parts of my district.

2429. (*Chairman.*) You think that the Pandon district is unfit for human habitation as compared with the Sandgate district?—I should say that the Sandgate district is by no means the worst. I should say, considering the large number of dwellings there, it is the best.

2430. We have had strong evidence from two or three superintending inspectors—from Sir John Fife, Doctor Humble, and many others—that, in their opinion, Sandgate could hardly, by any contrivances, be rendered fit for human habitation without first demolishing it, and then building it up again. Is it your opinion that that is equally, or still more applicable to the Pandon district?—To all of Pandon. I have been in every room in Sandgate frequently. I have spent days and nights in those rooms in the

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discharge of my official duties, and I know them well. Within the last three years the lanes on the north side of Sandgate have been flagged out, and since then you will find a great diminution of endemic disease and fever.

2431. (*Mr. Simon.*) You find that that has very sensibly improved the health of the inhabitants?—It has. Before that you had fever always prevalent.

2432. Is the paving equally good in Pandon?—In Pandon the pavement has been put down within the last twelve months; until then it was very wretched.

2433. (*Chairman.*) But on the whole, you think the district of Pandon is quite as bad as Sandgate?—I think Wall Knoll and Pandon infinitely worse than Sandgate.

2434. (*Mr. Bateman.*) Silver-street?—Infinitely worse.

2435. Worse than Pandon?—I do not know. It is difficult to determine that.

2436. (*Mr. Simon.*) Blyth Nook?—Blyth Nook is as bad as can be.

2437. Garth Heads?—Garth Heads consists of property of a different description—newer property.

2438. Built more widely?—Not altogether more widely; some of the streets are built very closely. There are Bedford-street and some other streets, very close streets.

2439. Is the privy accommodation good there?—They have more privies there, but they are rarely emptied, and they become nuisances.

2440. Do they communicate with the ash-pits?—In most instances they do.

2441. Do you know of any drained privies there—privies with water supply—that is to say, water-closets?—No.

2442. Do you happen to know of a water-closet in that district?—No.

2443. (*Chairman.*) You mentioned one in Sandgate, I think?—Yes, but that is not in this district; you are talking about Garth Heads.

2444. Do you know any other group or block of streets like the group about Sandgate, or the group about Pandon, which you think is in anything like the same improper condition?—I think, if you look at the map, you will find a block of houses from Dean-street to Pilgrim-street.

2445. (*Mr. Simon.*) Down to Butcher-bank, and up to Mosley-street?—Yes; you must make some exceptions—that is to say, the front of Mosley-street and of Dean-street.

2446. As far down even as Low-bridge it is very bad?—Yes. In fact, there is no privy accommodation. I know two or three houses at the Low-bridge. When cholera was bad here, one man went to St. Nicholas-square common privy; his wife had to fetch him, and he was dead before she got him to the house.

2447. There is a common privy in St. Nicholas-square?—Yes.

2448. Is that a well-ordered privy?—No, it is like all the other public privies here—beastly places.

2449. Is it under a house?—Yes; I do not know whether it is under a dwelling house or not; it is under a building.

2450. (*Chairman.*) Taking as a group this district between Mosley-street, Pilgrim-street, Dean-street, and Butcher-bank, and excepting certain portions of it along the front of these better streets, would you say that the generality of that district, so excepted, was as bad, or nearly as bad, as Sandgate and Pandon?—Quite as bad. In the interior courts, and so on, it is quite as bad.

2451. (*Mr. Simon.*) Shield-field?—In Shield-field there are privies and ash-pits.

2452. In combination?—Yes, mostly together; but there is no drainage, and it is very often under water altogether nearly. In fact, I have two or three patients there, who have had to take refuge in the upper parts of their house; they have been flooded out.

2453. What does that flooding come from?—I think want of drainage.

2454. Is it rain fall that floods them? Is it the Pandon Dean that floods them?—No, it stands right upon a small table land, so to speak. I might mention to you that, at the last town improvement committee meeting, the Rev. Richard Clayton wrote a letter, drawing the attention of the corporation to the state of Shield-field, saying that he and his colleagues had witnessed the wretched state of Shield-field, and asking the attention of the authorities to remedy it.

2455. When was that?—Last Wednesday week.

2456. (*Chairman.*) The upshot of your evidence would seem to be that, in your opinion, a very large proportion of your whole district is in such a state, that one would be tempted to say it was unfit for human habitation?—I do not think it is any worse than other parts of the town. I think it is a good deal better in many respects. More has been done for it of late years. It was worse, but it is now improving.

2457. (*Mr. Simon.*) Do you mean that to be in praise of your district, or in dispraise of the others?—I think it is both. I think we are getting better, and the others are getting worse.

2458. But in respect of your district especially, do you consider it a wholesome district for people to live in?—A great many most respectable people live in it.

2459. Do many of them die there too?—Yes, they do occasionally.

2460. Do you think they die out of fair proportion there?—You will find in this return (*handing in a paper*) for All Saints' parish, including not only all my district, but part of Mr. M'Nay's—for the correctness of the details of which Mr. George Grey, the assistant overseer, is answerable—that the mortality in Sandgate was rather less than the mortality in some other parts of the parish.

CHOLERA RETURN for ALL SAINTS PARISH, as divided into seven Sections, showing the Number of Deaths in each Street, the Number of Deaths in each Section, the Population of each, and the Proportion of Deaths to Population in each Section.

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30th Jan. 1854.

	No. of Deaths in each Street.
SECT. No. 1.	
Pilgrim Street and Lanes	23
South side of High Bridge	1
Bells Court	6
Mosley Street	–
Low Bridge	3
Painter Heugh	4
Silver Street	14
Manor Chase	6
Manors, West Side	1
Dog Bank	7
Butcher Bank	12
Side	2
Dean Court	2
Quayside to Broadchare	1
Hornsbys Chare	2
Pallisters Chare	1
Trinity Chare	2
Newcastle Chase	1
Grey Street	1
Hoppers Entry	5
1 in 53.	94
SECT. No. 2.	
Carliol Square	2
Gaol	9
Carliol Street	1
Trafalgar Street	5
Pictou Terrace	1
Pandon Dean	7
Pandon Bank	8
Pandon	10
Craig's Alley	3
Wall Knoll	11
Sallyport Gate	2
Factory Lane	1
Keelman's Hospital	5
Causeway Bank	1
Vint's Buildings	1
Croft Stairs	1
Quayside, East of Broadchare	1
Byker Chare	1
Blythe's Nook	7
Stockbridge	3
1 in 62.	80
SECT. No. 3.	
Adelaide Terrace	
Shieldfield	3
Wilkie Street	1
Camden Street	
Napier Street	1
York Street	2
Franklin Street	1
Shield Street	2
Wesley Street	7
Wesley Terrace	1
Carlton Street	1
Canada Street	5
Hardy's Buildings	1
Union Terrace	3
Ingham Place	1
1 in 79.	30

	No. of Deaths in each Street.
SECT. No. 4.	
Ridley Villas	3
Regent Terrace	2
Argyle Street and Argyle Place	7
Stepney Terrace	4
Melbourne Street	7
Buxton Street	7
Gibson Street	14
Blagdon Street	5
Blagdon Street, Little	5
Bedford Street and Place	6
Grenville Street	4
No. Side, New Road	2
Egypt	3
Howard Street	8
Richmond Street	5
Heaton Terrace	1
Chatham Place	3
Elswick	–
Elswick Lane	1
Garth Heads	2
Russel Terrace	2
Wilkinson's Buildings	1
1 in 47.	92
SECT. No. 5.	
Sandgate	19
South Side of New Road	8
North Shore	6
Cross Keys Entry	2
Pot House Entry	1
Keel ditto	–
Flag ditto	–
Petrie's ditto	–
Maughan's Chare	–
Blue Bell Entry	–
Pin Entry	2
Halfmoon ditto	7
Swirl	1
Dock House, ditto	–
Nimmo's Entry	1
Downey's Entry	–
North Side.	
Dark Entry	–
Newton's or Robson ditto	2
White Boar ditto	3
Ropery Bank	2
Wood Entry	
Somerville's ditto	3
Rowe's Gallery and Watson's	–
White House Entry	1
Nag's Head Alley	9
Young's	7
Hunter's	1
Mill Entry	1
Sellar's Entry	3
Eddy's Entry	5
Johnson's Entry	4
New Quay	2
1 in 54.	90

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	No. of Deaths in each Street.		No. of Deaths in each Street.
Sect. No. 6.		Sect. No. 7.	
Saint Ann's Row	–	West Ballast Hills	2
Cut Bank	4	Brewery Bank	–
Lime Street	14	Post Office Place	2
Ouse Street	7	Quality Row	6
Tyne Street	3	Burnside to York Street	3
Nelson Street	–	York Street	2
Millers Hill	1	East Ballast Hills	9
Oats' Landing	–	Albion Row	–
Fulton's Landing	–	Saint Lawrence	9
Saint Ann's Terrace	1	Mushroom	2
		Saint Lawrence Square	1
		Colliery Houses	1
1 in 57.	30	1 in 84.	33

Total of Sections.	No. of Deaths in each Section.	Population of each Section.	Proportion of Deaths to Population.
Section 1	94	5036	1 in 53
„ 2	80	5018	1 in 62
„ 3	30	2370	1 in 79
„ 4	92	4352	1 in 47
„ 5	90	4890	1 in 54
„ 6	30	1711	1 in 57
„ 7	33	2780	1 in 84
	449	26157	1 in 58

2461. (*Chairman.*) I only find two districts here which are worse than Sandgate. The mortality in Sandgate I find is 1 in 54?—Yes, that is about the average of the town.

2462. In the Pilgrim-street section I find it is 1 in 53?—Yes.

2463. In the Regent-terrace section I find it 1 in 47?—Yes.

2464. Then the other four districts are better?—Yes.

2465. (*Mr. Simon.*) Do you find in your district that there is much mortality among young children?—Enormous. I should say, from a rough guess, about half the children of the poorer classes die under five or six years of age; they die of mesenteric disease.

2466. Do you believe that human life is materially abridged in your district?—Yes.

2467. (*Mr. Bateman.*) We had the pleasure of accompanying you over a good many of those places. Is fever often absent from Eddie's-entry?—Fever is not often absent from Eddie's-entry.

2468. Hunter's entry, Stringer's yard; is that a very bad place?—No, not now.

2469. Dublin Terrace?—That is in Mr. McNay's district.

2470. (*Mr. Simon.*) There seems in your district to be a very large poor population?—Yes.

2471. Can you speak with any confidence of the habitations of the other classes in that district?—In the older parts of the town,—in the business parts of the town, as a rule, there is no privy accommodation, even amongst the respectable classes.

2472 Is there ash-pit accommodation?—No.

2473. (*Chairman.*) What do those classes use?—They use kits, I suppose.

2474. (*Mr. Simon.*) They are driven to the same shifts as the working classes?—Yes. When I commenced practice here about thirteen years ago, I had a house in the neighbourhood of Bridge-end. I paid 25*l.* a year for that house. Our kit was placed in the yard; the rule was to empty it over the bridge in the neighbourhood here; all people in the neighbourhood did the same.

2475. (*Chairman.*) Into the Tyne?—Yes; I believe that is the immemorial method of disposing of that kind of excrement there.

2476. (*Mr. Simon.*) In respect of all those things which you have mentioned to us as general features of the district, that there is defective ventilation, that there is inaccessibility to light in the dwellings; that they are overcrowded; that they are dirty; that several

families are in single rooms; that there is no privy accommodation; that excrements are shot out into the public way in all directions; that there is no proper ash-pit accommodation; that the water was foul for a couple of months, and so forth; in respect of these things, did you make any official representations to any persons in authority in the town?—I, from time to time, being an officer of the board of guardians, represented the state of my district to them.

2477. You have from time to time represented to the board of guardians the condition that district?—Yes.

2478. (*Chairman.*) Viva voce or in writing?—Generally in writing.

2479. *To Mr. Forster, clerk to the board of guardians.*)—Would those representations be forthcoming?—(*Mr Forster.*) I have no doubt that those which are in writing will be forthcoming.

2480. Will you be good enough to let your minutes be searched for any memorials or other records presented to the board of guardians by any of the union medical officers?—(*Mr. Forster.*) Most gladly. Would you restrict it to any particular period?

2481. Since the Irish fever, say at the beginning of 1847. (*To Mr. Newton.*) Would that cover the time to which you allude?—Yes.

2481A. (*Mr. Forster.*) Down to the present time I presume?—(*Chairman.*) Down to August 1853; we do not want anything since then.

The following communications from Mr. Newton to the board of guardians were afterwards handed in by Mr. Forster, clerk to the board.

I visited this morning the abode of Thomas Snelson, the person reported to have died of cholera. The body of the deceased indicated nothing particular. I remember having attended him four years ago, when he suffered from an attack of English cholera.

The abode of this family is, I think, worthy of notice. The house of which it is a tenement is built against the south side of All Saints church-yard, and the ceiling of the room is a good deal lower than the surface of the burying ground. The side of the dwelling, built against the bank which descends from the church walk to the river's edge, is exceedingly damp, and a closet in the corner, receding a little way into the church-yard, is said to emit a horrible fœtor. Unless the wall of the house is thick, the coffins in the church-yard must be in actual proximity to this door; so that the dead and living will be imperfectly separated. It is the property of All Saints' church. Mr. Pearson collects the rent, and there are several houses in a similar condition.

WILLIAM NEWTON,
Surgeon.

Tuesday, 17 Oct. 1848.

Gentlemen,—We have attended during the past week forty-three cases of Asiatic cholera; of this number twenty-nine are new cases. We have had ten fatal cases in the period, amongst whom is one of the nurses.

The district has been carefully and regularly inspected, and it is gratifying to know that where the patients came under medical treatment in the preliminary stage of the disease life has been nearly always saved.

We beg to direct the attention of the board to the fact that those localities in which the disease has hitherto appeared are defective in drainage, and that we think the corporation should pay more attention to those parts of the town; for by doing so it seems evident that the diffusion of the disease might be arrested.

In addition to the cases recorded in the weekly report, we have attended to the numerous applications which have been made to us.

We are, Gentlemen, obediently,
WILLIAM NEWTON.
WM. R. SHIELL.

Gentlemen,—We have attended during the week just ended twenty-seven new cases of cholera; during the same period there have been twelve fatal cases. On the whole the epidemic seems to be declining; and as soon as it is expedient and practicable, the ordinary method of medical relief may be resorted to. The experience of a few days will point out the proper course to be taken.

We continue to direct our attention to the prompt and ready treatment of all cases of diarrhœa.

We would suggest to the board the propriety of interdicting, as far as they have the power, the practice of intramural interment, being convinced that at the present time the practice is highly pernicious.

The supervision of the district has produced greater cleanliness, and seems calculated to protect the inhabitants from all diseases capable of being greatly influenced by local causes.

We are, Gentlemen, obediently,
WILLIAM NEWTON.
WM. R. SHIELL.

21 Sept. 1849.

W. Newton, Esq.

23d Jan. 1854.

Copies of letters from Mr. Newton to the Board of Guardians.

Sir,—Permit me to call the attention of the board of guardians to the sanitary condition of the district which I have the honour to have under my care. Without entering into general considerations I conceive that I can best make them acquainted with its condition by detailing the results of an examination which I have made this morning.

I have not selected these dwellings as specimens of the wretchedness and disease that are prevailing, but I am inclined to believe that, with your co-operation, the nuisance may be abated and the pestilence perhaps stayed.

Commencing with my visits this morning at the head of Eddy's entry, I went into a room in which reside three families, making in all twelve people; two of these are ill of fever.

Next door I find a family consisting of six individuals, and one of them ill of fever.

In one of the rooms above these dwellings eight persons live, and one of them is ill of fever.

Adjoining this room there are seven individuals, two of whom are suffering from fever.

Proceeding up stairs I find five persons occuping a room, of which number two areill of fever.

In No. 6 there are five inmates all well.

In No. 7 there are eight people, and a child lying dead.

No. 8 all well.

No. 9 three families, nine people.

No. 10 contains sixteen people, of whom four have fever.

No. 11 six inmates; one ill of fever, next door a corpse.

No. 12 four inmates; one ill of fever.

No. 13 four inmates; one ill of fever.

No. 14 five people all well.

All these, be it remarked, are in Eddy's-entry, the property of one man and under the management of a deputy landlord. Should the board of guardians be pleased to appoint a committee or a deputation for the purpose of laying, in conjunction with me, a correct representation of this shocking state of things before the landlord, I have no doubt but that much good might be effected.

The board of guardians will be pleased to remark that in most of these rooms two or three families are crowded together, and that by this arrangement a higher rent than is ordinarily obtained can be extorted; by which means, in my opinion, *fever*, if not created, may be perpetuated and disseminated throughout the habitations of the poor.

I am, Sir, your most obedient servant,

To the Chairman of the Board of Guardians, WILLIAM NEWTON.

7 Feb. 1851.

Wednesday, 12th March 1851.

I have examined a number of tenements, in company with the inspector of nuisances, and there is certainly a great improvement, not only in the lanes and rooms themselves which have been subjected to a thorough cleansing, but the health of the people is decidedly better. There has not been a fresh case of fever in Eddy's-entry since my last report, and by diminishing the number of inmates in each room, there has been a corresponding diminution in the sickness prevailing throughout the locality.

The success attending your measures, I think, should encourage you to request in the proper quarter the application of bye-laws to public lodging-houses, and to what may be denominated private lodging-houses, if the law extends to them, limiting the number of inmates, so that small, dark and miserable rooms should not present the appearance of many of the horrors of miniature "black holes of Calcutta." I cannot conceive that those gentlemen are serious who talk of respecting the liberties of these poor people, when it is plain and obvious that the thing to be respected is their *lives*, without which liberty is not of *much* value. Let them, in the first instance, be placed in the enjoyment of life, the primary gift of God, as pure and as uncontaminated as it can be made, and then they will be placed in a position to receive liberty, education, or any other secondary gift. The only liberty at present available to the tenants of these dens is the unenviable privilege of living in the midst of filth, and of being exposed to every kind of pestilence.

WILLIAM NEWTON.

Medical Officer, No. 2, district.

Pilgrim Street, 15 Aug. 1851.

Gentlemen,—Permit me to call your attention to the condition of Sandgate, in which small-pox is prevailing to an unprecedented extent, and to request that you will well publish a general notice to the inhabitants and owners of property reminding them of their duties, and of your power to enforce their fulfilment.

If this is done I believe that your former efforts to ameliorate the state of the dwellings of the poor, and to reduce expenditure, will be more permanent and effectual than it would otherwise be.

Without your co-operation I am afraid that the rate of mortality amongst the poor will be increased.

I am, Gentlemen, obediently,

WILLIAM NEWTON.

W. Newton, Esq.

23d Jan. 1854.

Gentlemen,—As it is not improbable that this town may be again invaded by cholera, and as you are the guardians of the public health, it does not appear to me improper to be on the alert and prepared to meet the evil.

1st. I would recommend that all nuisances, in whatever part of the town situated, should be removed *forthwith*, and perhaps a public intimation from you might strengthen the hands of your officer, Mr. Roberts, with whom your medical officers will, of course, co-operate in making the less frequented parts as clean and wholesome as possible.

2d. The corporation officer lately appointed might be asked to lend all the assistance in his power, and at the disposal of that body, as it is a portion of his duty to see that nuisances are abated or abolished.

3d. The corporation pays the water company a sum of money for the use of water to wash out the Sandgate lanes, &c., and it might be desirable to call upon them to fulfil their obligation at this time.

4th. On a case of cholera occurring, it should be immediately reported to the board, together with a description of the locality and its inhabitants, with a view to decide, with the advice of your medical officers, what measures might be taken for the purposes of safety and protection.

There are other suggestions that might perhaps be made, but I have perhaps said enough at present for the occasion, and I doubt not but that you will take every step which prudence and forethought can demand.

I am, Gentlemen, your obedient servant,

Pilgrim Street, 10 Sept. 1852. WILLIAM NEWTON.

2482. (*Mr. Simon to Mr. Newton.*) Can you speak to any particular measure adopted in consequence of these representations?—Yes, the board of guardians had intrusted to them the execution of the Removal of Nuisances Act, in the autumn of 1848. They delegated that duty to me, as far as my district was concerned, and to one or two inspectors of nuisances; and the district was cleansed very much. An immense number of nuisances were abated; and the town was, I think, never so clean as it was at the end of 1848.

2483. Did you attribute to that increased cleanliness of the town any influence in respect of the slight prevalence of cholera in the following year?—I did. I thought that the town then was much cleaner than it had been for a number of years. Existing nuisances had been abated, and I thought that the board of guardians had, in fact, carried out the Act well, even though the corporation frequently obstructed the board of guardians.

2484. You made representations to the board of guardians of the sanitary defects of your district; and in consequence of those representations there was organized, under the Nuisances Removal Act, a system for the removal of nuisances?—There was.

2485. The working of which was entrusted to you, as the medical officer of this district, and to certain inspectors of nuisances?—Yes; and to the other medical officers in their districts.

2486. And under that system considerable cleansing of the district occurred?—Yes; in fact, an enormous number of nuisances were abated.

2487. (*Mr. Bateman.*) You said in a previous answer that much had been done in effecting an increased cleanliness of the place by the board of guardians, notwithstanding the frequent opposition of the corporation?—Yes.

2488. In what way did they oppose the board?—I do not remember the number of times that the mayor had to be summoned, but you can ask Mr. Jenkins, the officer in my district. He may tell you, perhaps, how often he had to serve the mayor with a summons.

2489. In his personal capacity, with respect to a personal nuisance?—No; with respect to a public nuisance, and as the head of the municipality; that is to say, a nuisance had been complained of, and certified as being a nuisance; but the corporate authorities refused to remove it upon that evidence; and they drove the board of guardians to have recourse to ulterior measures against them.

2490. (*Chairman.*) How often?—I cannot specify the number of times. I know of two instances, perhaps, or three.

2491. I know from the books which have been lent me by the board of guardians of one midden case, and of one privy case in which the corporation resisted the board of guardians before the magistrates, and were beaten: now do you know of more than those two cases?—No; I do not remember another case just now.

2492. (*Chairman to Mr. Forster.*) May I not take these books of yours, with reference to nuisances, to contain all the information on the subject of these nuisances that you thought it requisite to record anywhere?—(*Mr. Forster.*) They contain all the information in the possession of the guardians. You will see that in one of the books there is a reference to some reports which are not set forth. One of the inspectors of nuisances,

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who kept that book, kept those reports, but I have not been able to find them; he died rather suddenly. I have used the utmost diligence to ascertain what became of his papers and I cannot find them. It only relates, perhaps, to half a dozen of the nuisances.

2493. Is it probable that out of the many times the corporation were complained of by the inspectors of nuisances—some fifty times, perhaps, within my own knowledge, as obtained from these books—they should have resisted those applications, and put the board of guardians to the expense and trouble of going before the magistrates more than twice without it being recorded there?—(*Mr. Forster.*) I think not.

2494. You think such a matter would have been recorded? — I think so. Of course I speak during my own experience, which extends from 1851 down to the present time; but I should state that I was, prior to that, a guardian myself.

2495. (*Mr. Simon.*) Do you know of more than the two instances referred to of that kind?—(*Mr. Forster.*) No, I do not.

2496. (*Mr. Simon to Mr Newton.*) Have you had any occasion officially to bring the defective sanitary condition of your district under the notice of the council, as an officer of the Poor Law Board?—No; when cholera prevailed in 1849, I think some party sent from London (from the Board of Health it would be) printed forms, requiring them to be filled up, describing the sanitary condition of the houses of the poorer classes. I thought it my duty frequently, when a case of cholera occurred in a tenement belonging to the corporation, to mention it as a disgraceful fact that the wealthy corporation of Newcastle should own these tenements where fever had been so prevalent, and where cholera was then breaking out. I believe that the town clerk, or some of the corporation applied to the board of guardians for a copy of those reports. I do not know whether they got them or not; they knew at all events at that time that I had so represented the corporation property.

2497. Are you cognizant of any bye-laws having been made previously to September in last year, under a power given in the 109th clause of the Local Act of 1846, for this borough, by which the town council are empowered to regulate slaughter-houses, knackers' yards, scavengers, the management of public privies, the registering of lodging-houses, and the like?—I believe in September of last year they did pass some bye-laws to regulate lodging-houses.

2498. (*Chairman.*) But do you know of any such having been made previously to September 1853?—I remember, I think, about eight or ten months before that that I, in my place in the council, brought before the notice of the corporation the fact that the Common Lodging-houses Act had been left nearly a dead letter. They had simply registered the common lodging-houses,—they had simply obeyed that part of the statute; and I believe there had been a commitment or two for non-registration.

2499. (*Mr. Simon.*) They had not made regulations for maintaining cleanliness therein and keeping them in a wholesome condition?—They, in fact, had omitted to pass any bye-laws, or to get the Secretary of State's certificate to the bye-laws so passed; so that they could not interfere with the internal management of any lodging house.

2500. What was the result of your motion?—They passed my motion unanimously, and referred it to the Watch committee. I was not a member of the Watch committee; I was at the trouble to supply Mr. Hunter, one of the members of that committee, with a copy of the bye-laws which the Secretary of State had certified in other towns; but not being a member of the Watch committee I could not very well interfere further. They took no notice of that motion until cholera came; it was dealt with, I believe, in the midst of the epidemic.

2501. (*Chairman.*) When was it that you supplied that copy of these bye-laws?—It would be twelve months from this time, perhaps.

2502. Then about eight months before the recent outbreak of cholera, you furnished a member of the Watch committee with a copy of the bye-laws which had been made in other towns?—Yes.

2503. But, as far as you know, no proceedings whatever were taken thereupon till after the outbreak?—Yes; the gentleman whom I so furnished was Mr. George Hunter.

2504. (*Mr. Simon.*) We infer, from your description, that a great number of the dwellings in your district are of a class which might be called filthy and unwholesome; and we find that this 109th clause gives power to the town council to make rules for cleansing dwellings of that sort?—Yes.

2505. Are you cognizant of the operation of any such rules within your district between the passing of that Act in 1846 and September 1853?—No; there were no such rules, I will say so; at least they were never acted on.

2506. Do you believe that the application of such rules within your district would have done something towards the mitigation of disease there, especially as respects the crowding?—Yes, I think it would have been a most valuable and a most salutary measure; I think it would have saved the town from Irish fever, and would have saved the town from some of the suffering that lately occurred to it through the cholera.

2507. Do you think that the application of rules for cleansing filthy and unwholesome dwellings was required in your district?—Yes, they were required.

2508. And would have been useful?—Undoubtedly.

2509. As regards the duties of scavengers and the management of public privies, are you cognizant of any bye-laws for regulating them?—I am not.

2510. In your district has there been a want of such regulations?—I think the scavenging has been very wretched, not owing altogether to the scavengers themselves, but, partly owing to the fact that until lately, in many portions of the district, the pavement has been in such a state that scavenging was next to impossible.

2511. Till when has the pavement been in so bad a state as you describe?—The alleys on the north side of Sandgate have only been paved out with Scotch granite two years. Pandon has been done out about twelve months. Previously to that, the whole of the pavement in these places was in a wretched state. The pavement in Blythe Nook and Pandon Dean, and other places is still wretched.

2512. Do you know of any swine being kept within any of the dwelling-houses?—No, I do not know of any now.

2513. Are there slaughter-houses or knackers' yards in that district?—There are one or two now.

2514. Are they under regulation?—No, not that I am aware of.

2515. Are there both slaughter houses and knackers' yards?—No knackers' yards; there are slaughter-houses.

2516. (*Chairman.*) I find in one of these books belonging to the board of guardians, that on the 18th of February 1851 Inspector Jenkins reported that, having inspected the locality with you, he found that some premises in Eddie's-entry had only recently been rebuilt, wholly without privy or ash-pit accommodation, so that the occupiers were obliged to throw everything into the thoroughfares; do you recollect that. Is it a correct statement?—I frequently inspected Sandgate with Mr. Jenkins. I cannot say that I did so upon that day. With reference to Eddie's-entry, there were two privies; but I believe they were destroyed and nailed up by the landlord.

2517. Do you recollect any premises being entirely rebuilt in that place, without any such accommodation being provided for them?—No; those two privies were put in evidently for the accommodation of those people, but they do not appear to have been used.

2518. Do you remember when they were put in?—I only know that they are there now.

2519. And that they are nailed up?—And that they are nailed up.

2520. (*Mr. Bateman.*) You remember on a recent occasion being in that place and seeing the collector of the rents?—Yes.

2521. Who showed you the privies?—Yes.

2522. And who stated to you that they were shut up about three years ago, because the people would not use them properly, but left their dirt at the entrance?—Yes.

2523. (*Mr. Simon.*) When we asked you what part you had taken in bringing these matters under the notice of the corporation, we asked you particularly what you had done officially as an officer of the board of guardians. Is there anything which you would wish to say to the Commission, as a member of the town council, with respect to the part which you have taken in bringing the matter before the rest of that body, or relative to the part which they have taken for the purpose of sanitary improvements?—I frequently stated, in my place in the town council, that the town was in a wretched state as far as sanitary provisions were concerned. I have done so upon various occasions. I have always thought that the town council did not know much about the matter; and they were rather apathetic in fact.

2524. Have you founded formal motions on your opinions upon those subjects?—In the Town Improvement committee, upon my motion, I got the flagging put right at the north end of Sandgate. I also got it put right in Pandon. I have always found that when the members of the town council did know the actual state of things, they very cheerfully acceded to any request; but I apprehend that the gentlemen there do not know much about the lower parts of the town.

2525. Have you ever brought under their notice the almost entire absence of house drainage that prevails in the town of Newcastle?—I have, in my place as a member of the Town Improvement committee. I have been asking at meeting after meeting for a plan of the sewers, so as to see the state of the sewerage of the town. That plan has been promised from time to time but never furnished. I believe other members of that committee have also called for it.

2526. (*Chairman.*) Were you on the sanitary committee of the eastern district in 1848?—Yes.

2527. Were you one of the members who resolved: "That the corporation be "memorialized on the subject of the general drainage throughout the borough, and that "they be requested to supply the board with a map of the drainage;" that resolution having been passed on the 20th of November 1848?—Yes; and at a public meeting in the Guildhall, I also complained that there was a want of drainage in some of the principal thoroughfares of the town; some of the oldest streets of the town had not been drained. Pilgrim-street was not drained at the time to which I allude.

2528. But no such map was forthcoming in the five years between the 28th of November 1848, and the 28th of November 1853?—I have not seen such a map. I understand there is one somewhere.

2529. You, as a member of the town improvement committee, have not been able to get access to it?—No.

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2530. (*Mr. Simon.*) Do you mean that you have never been able to get a copy of it for your own use, or never been able to get a sight of it?—I wanted a copy of it for the use of the committee.

2531. And you have not been able to get it?—No.

2532. (*Mr. Bateman.*) You have said that members of the town council, when they ascertained what was required, cheerfully assented to carrying out such works as appeared to be necessary?—Yes.

2533. Then there is not existing in the corporation, or in any section of the town council, any desire to preserve all these old parts of the town in their ancient condition?—There is a feeling of indifference—a feeling of apathy. If you once get the true state of things set before certain gentlemen, at all events, of the town council, you have their energetic and active assistance.

2534. (*Chairman.*) Are you aware that, after the Irish fever in 1847-8, the corporation established some baths and washhouses in the New Road, Sandgate?—Yes.

2535. Do you think that the common people showed a disposition to avail themselves of that?—I think the corporation did not go the proper way to make them popular with the common people. In the first place, they are very rudely constructed. In the second place, the washhouses are anything but perfect; there are no mangling rooms. In the third place, some more respectable parties, that would otherwise have availed themselves of those washhouses, complained that there was not a proper separation of the washhouse, so that many people lost their clothes; and it was thought that before you could make these baths popular, so as to get the people to take baths, the corporation should have been more liberal in distributing tickets, either through the hands of the parochial authorities, or various charitable institutions, so as to accustom the poorer classes to the use of the warm bath—they did not do that.

2536. (*Mr. Town Clerk.*) Have not those baths been much used?—I believe not very much used.

2537. (*Chairman.*) Leaving out the question of the tickets, do you believe that the want of a mangling house, and that the want of sufficient arrangements in respect of separating the clothes, have tended to check the use of these washhouses?—Yes.

2538. Do you remember by whose exertions mainly those baths and washhouses were established?—I believe mainly by Mr. Crawhall, who lived then at the end of Sandgate, and had an interest in that locality.

2539. Was he an alderman?—Yes.

2540. And you have heard that it was mainly owing to his exertions that the thing was brought about?—Yes.

2541. Is he since deceased?—Yes.

2542. (*Mr. Simon.*) Have you ever brought distinctly under the notice, and to the knowledge, of the town council the condition of house drainage and privy accommodation in the borough?—I brought it before not only the town council, but everybody else, in the shape of a letter to the *Times*; and the mayor at the time, Mr. Lambert, called the attention of the council to the statement which I then made. I stated in that letter to the *Times* that about 15,000 families in this town were without privy accommodation.

2543. (*Chairman.*) You say, "at the time;" at what time was this?—It was just when cholera broke out; it would be about the 9th or 10th of September.

2544. Do you say 15,000 families or 15,000 people?—15,000 families. I had a peculiar way of getting at that fact. I am anxious to invite attention to that statement, as it has been very much criticised.

2545. (*Mr. Simon.*) Do you still entertain that opinion?—I do. In a letter which I wrote to a local paper, I alluded to the fact of the mayor having called attention to the statement; and I spoke to the mayor personally about it.

2546. (*Mr. Bateman.*) How many people do you estimate each family to consist of?—When I wrote that statement, I assumed that there were about 15,000 families located in rooms in Newcastle; and I did so rather upon practical than upon any statistical information which I had by me. I know nearly the whole of Sandgate. I know all that stack of buildings from the Milk Market up to the Sand Hill. I know the whole of the Side, Hopper's-entry, and Pilgrim-street, as far as the High Bridge, and a good portion above there, nearly the whole of St. Nicholas'—at least, with exceptions—and throughout the Bigg Market, all the lanes in the Bigg Market, all the lanes in the Cloth Market, and going up Newgate-street and Percy-street also, and towards the eastern district, Ballast-hills, and so on; and according to the knowledge which I have got going about these places, upon these rough data, I say, I assume that there are about 15,000 families located in rooms, of which number there may be about 5,000 families occupying single rooms. I am aware, of course, that in many of the single rooms in all parts of the town there are often two or three families located. Now, I suppose that 5,000 out of these 15,000 families only have privy accommodation; and to the 10,000 which I suppose are without it, I have to add the casual families who lodge with others, and, in fact, live with them, and also the occupants of single houses, situated in some of the business parts of the town. I think that that would, altogether, make up 15,000 families.

2547. You do not know how many individuals there would be to each family?—You might multiply them by four.

2548. That would be 60,000 persons?—Yes.

2549. (*Mr. Simon.*) Two-thirds of the population of Newcastle?—Yes. The population of Newcastle, I hold, is not given by the census—that is to say, the census gives the population at about 80,000. Now, it is very probable that you have, in these overcrowded rooms, say, at all events, 10,000 more,—10,000 casual parties not mentioned in the census.

2550. (*Mr. Bateman.*) That would make 90,000 persons?—Yes.

2551. And 60,000 out of that would be two-thirds of the whole population?—I think two-thirds of the population have not access to private privies.

2552. (*Chairman.*) We want, in this respect, to get your most deliberate opinion. We do not see, as far as we have yet gone, that there can be any one in this borough more intimately acquainted with these facts than medical officers in your position; and therefore we should be disposed to attach very considerable weight to your deliberate opinion upon that point. Do you, reconsidering the matter deliberately, think that we should be justified in assuming that 10,000 families in this borough are without privy accommodation—that is to say, that they have to go here and there, and where they may, to find an opportunity of obeying the calls of nature?—I do.

2553. You think we are safe in taking 10,000 families?—Perfectly safe. I may remark that my statement about the 15,000 families referred to August 31st last, and that some public privies, and a very great number of waterclosets and other private privies have been made since.

2554. (*Mr. Simon.*) We understand all your evidence to apply to the time previous to the outbreak, except where you have otherwise mentioned?—Very well.

2555. (*Mr. Bateman.*) When you say that from 10,000 to 15,000 families had no access to privies, do you throw overboard the consideration of the public privies?—No; the men might go to the public privies of course, but the females and children would have no access to them.

2556. And therefore they would really have no access to any privies?—The females and children have no privies at all, the males might go to the public privies.

2557. (*Chairman.*) Is there any other point on which you wish to make any observation?—I do not know that there is, unless you wish to ask me a question. With reference to Irish fever, in 1847, you will find if you look at these books the localities in which fever occurred.

2558. What books are those?—Those are the returns which I make weekly to the board of guardians. If Mr. Simon will look over those cases in September 1847, he will find the diseases and the localities mentioned, and he may recognise some of those fever localities as cholera localities also.

2559. (*Mr. Simon.*) Is it your belief that the prevalence of fever, as here enumerated, and the prevalence of cholera as it occurred last autumn in your district, have depended materially on, or have materially been aggravated by, the sanitary errors of which you have spoken?—I think they have been aggravated by sanitary errors. I do not believe that cholera has its origin in defective sanitary regulations; but I believe that defective sanitary regulations aggravate the visitation.

2560. In a material degree?—Yes; overcrowding, bad water, bad sewerage, want of privies, want of cleansing of ash-pits, and other things.

2561. And you believe that those evils generally existed throughout your district last year, previously to the outbreak of cholera?—Yes; but before the Irish fever occurred more so than before cholera occurred.

2562. But that they did exist last year to a considerable extent before the outbreak of cholera?—Yes, they did. In some respects, however, the district was a good deal better; some portions of it had been improved very much.

2563. You consider your district to have been decidedly improved in respect of its paving?—Yes.

2564. And are we to understand you that there the improvement ceases?—I think it may be so. In my district you will find that, in some of the narrow lanes in Sandgate, several new erections have been made for the accommodation of people living in tenements within the last year or two.

2565. (*Mr. Town Clerk.*) Some old buildings taken away?—Some old buildings taken away, and some new buildings erected.

2566. Of a better character?—Not of a better character, but of a worse character; inasmuch as they will accommodate a greater number of people, but accommodate them equally badly.

2567. (*Mr. Simon.*) May I take it as your opinion that a very considerable portion, and indeed the greater portion of the poorer habitations of your district, are unfit for the reception of human beings?—Yes.

2568. (*Mr. Town Clerk.*) You spoke of a difficulty in getting access to the plan of the drains. Did you ever ask the town surveyor for it?—I made several motions in the Town Improvement committee. The last Town Improvement committee meeting but one that I attended, I made an effort, and Captain Weatherly agreed with me that it ought to be obtained. The suoject of drainage has seldom been before the Town Improvement committee, but I have made the same request before; and I have often been

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obliged with a promise that it would be forthcoming. I may mention that, in this list which I have handed in, there is some corporation property from the Folly down to about Hopper's Landing. Commencing at the Folly, and going down to the Swirle, it is principally corporation property.

2569. (*Mr. Simon.*) Is it within your district?—Yes, most of it; at least as far as the Swirle.

2570. Do you find it in a materially better condition than the rest of Sandgate?—In 1847 it was so bad, that not being a member of the Town council, and having no other means of bringing this state of things before the public, I addressed a letter to the *Gateshead Observer*, detailing a visit which I made to this corporation property. I found that it was in a most filthy state, overcrowded, with many of the windows fixtures; that the floors were so thin, that a little water spilt in one room passed into another; that the people lived in garrets pervious to water—in fact, one old woman told me that whenever it rained she had to move her bed about to get out of the way. I believe, in consequence of the statement which I then made, the corporation property has been made better. They have since that paved the yards out, and, I believe, pulled down some places; and they seemed to be inclined to do something with it.

2571. Have they furnished any addition to the privy or ash-pit accommodation?—No.

2572. (*Mr. Bateman.*) How long has this property been the corporation's?—I think they have been buying it gradually.

2573. Within what period?—I have known it for about ten years.

2574. (*Chairman.*) Did any considerable portion of what they now own there belong to them then?—Yes.

2575. As much as half?—Yes. I may mention to you that when the Irish fever prevailed here, I was summoned, as an officer of the board of guardians, to meet the magistrates, and I was asked by an alderman where fever prevailed worst, and I stated in the corporation property. I remember that he asked me in which part; I told him the Keel-entry.

Mr. (Town Clerk.) That has been pulled down.

(*Mr. Newton.*) In 1853 it was.

2576. (*Mr. Simon.*) As regards this property generally, we would ask you whether what you have said of your district in general, about crowding in the rooms, about filthiness, about want of privies, about want of ash-pits, the bad and ruinous condition of houses, impossibility of ventilation, and the like, applies to these houses belonging to the corporation as much as to the others?—Not now. I think the corporation tenements in Sandgate now are a shade better than the other tenements. In some portions of it there are two or three families occupying a room occasionally; but I believe that it is not known to the rent collector. I believe it is only done occasionally. It is not habitual. It is put down as soon as detected.

2577. Then you would consider the crowding less than in the interior parts of the district?—Yes.

2578. (*Chairman.*) On the whole you think that there has a visible improvement taken place in the corporation property entitling it to a preference over the rest of Sandgate?—I can scarcely say a preference; it is a shade better.

2579. (*Mr. Simon.*) Are the different tenements in this property clean?—No, they are not clean.

2580. Are they dirty?—They are in a medium condition.

2581. (*Chairman.*) Are they fit for human habitation on the whole?—Some of them are. I should say Half Moon-lane is a very filthy abominable place. I remember Dr. Headlam visiting Half Moon-lane with me in 1847.

2582. (*Mr. Simon*). But as respects the present time, should you say it is fit for human habitation?—No; several of the rooms are not. There were seven deaths from cholera in that lane alone.

2583. In September, 1853?—Yes.

2584. It was not in your opinion fit for human habitation in 1853?—No.

2585. (*Mr. Bateman.*) Is Half Moon-lane the same as Half Moon-entry?—Yes.

2586. (*Mr. Simon.*) Are there other parts of the corporation property in that locality of which you would say that they are unfit for habitation?—There were some in Keel-entry, but they were pulled down in 1853.

2587. But of those in existence in August 1853?—Yes; there are some houses at the foot of Blue Bell-entry unfit for human habitation.

2588. Any others?—Some in Maughan's-chare, I think, unfit for human habitation.

2589. Any others?—You may go along the whole of the south side of Sandgate, and detect rooms here and there unfit for human habitation; and there are a few rooms along the north shore of which Mr. M'Nay can tell you more than I can, for I have not seen them lately.

2590. (*Mr. Town Clerk.*) I think you said that the corporation were gradually buying in Sandgate, with the object of pulling down the whole, no doubt?—Before fever attacked the locality, it was stated, when I complained, that this was merely a temporary possession of it by the corporation. I replied, I think in the public papers, that life and death,

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and everything else were temporary. It is now some years since, and this temporary possession is still in the same state, and most likely will be a temporary possession after Mr. Clayton shall cease to be temporary.

2591. (*The Clerk to the board of guardians.*) You have stated that, as an officer of the board, you had occasion frequently to make communications both upon sanitary and upon medical subjects?—Yes.

2592. Have you not found that to those communications prompt attention has been given?—I stated in my evidence that the board of guardians always attended to me most respectfully. They carried out any suggestion which I made to them cheerfully and promptly, and I attributed much of the mildness of the epidemic in 1849 to their exertions.

2593. You have spoken also of the condition of the dwellings of the low Irish. Are you enabled to state, from your knowledge of their habits, whether, supposing their dwellings were all cleaned to-day, a fortnight hence they would not be in the same condition?—I cannot tell unless you give them a chance.

2594. However, every suggestion as to cleansing has been attended to, which you have made?—Every suggestion that I have made has been attended to by the board.

2595. You spoke of finding on one occasion three dead bodies in a room?—I mentioned one occasion, during the Irish fever.

2596. At that time there was very great difficulty in getting people to bury the dead?—There was.

2597. A great deal of difficulty to get anybody to come near those who were dead?—There was.

2598. Are you enabled to state, from what you saw done by the guardians and their officers, that the utmost activity and energy was shown by them towards accomplishing the burial of the dead, and getting assistance for that purpose?—When I mentioned that I saw the dead with the living, I did not mean to say that they had been neglected. It was merely the mortality that had occurred overnight. The board of guardians, in fact, delegated much of the executive to myself in my district, and until I was taken ill with fever, I believe that they had no reason to complain that those duties were not well performed; so that what Mr. Forster is asking me is simply my opinion of my own conduct.

2599. (*Mr Simon.*) You suffered from fever yourself?—Yes.

2600. You were away for two months?—About two months—six weeks, I think I was away. My apprentice died.

2601. But during that time your place was occupied by certain substitutes, I believe?—Yes, it was.

2602. How many of them were there?—It was first occupied, I think, by Mr. Turner; he is now deceased. He was the medical officer for No. 1 district.

2603. Did he contract fever?—He took fever.

2604. Who took his place?—Mr. Shiell.

2605. Did he get fever?—He took fever.

2606. Who took his place?—I think a Mr. Wilson took his place.

2607. Did he get fever?—I believe he did.

2608. Who took his place?—I do not remember; I believe Mr. Pearse. I found, when I returned from the country, Mr. Pearse in the office.

2609. Do you know how many people had occupied your place during your six weeks' absence?—I have mentioned four, but it occurs to me that there was some one else—Mr. Allison also.

2610. Did any other take your place; have you included your apprentice in this list?—No.

2611. Did he act for you?—Yes, he acted along with me.

2612. Did he get fever?—Yes, and died; and the relieving officer took fever, and was very ill, and the relieving officer's assistant died.

2613. In fact, including Mr. Pearse, there were at all events five or six substitutes in your six weeks' absence?—Yes, six or seven; I think there might be another, but I forget.

2614. Was it looked upon as rather a dangerous service?—Rather.

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2615. (*Mr. Simon.*) In the course of our inquiry we have been anxious, for the purpose of determining our judgment on the history and the causes of this epidemic, to investigate as many instances as possible where cholera has occurred in houses alleged or supposed to have been free from sanitary defects. Now, among those which have been mentioned to us as instances of this kind, there are some houses situated at Ridley Villas; and we are told that you can give us some information with respect to that locality. Will you have the goodness to do so?—I visited Ridley Villas again this morning. Cholera occurred in two houses there; in No. 17 and No. 18.

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2616. Adjoining houses?—Yes. The owner of No. 17 is a friend of mine, and I had the liberty to go into his house. I entered by the yard, and I found that the ash-pit is half full of water in the driest weather; it is always soaking; the yard is three feet below the level of the lane behind. The tenant does not know where the drain is; he has offered to repair the drain at his own expense if he only could be informed where it was. The yard stinks, and there is great difficulty in keeping it clean. All the lower part of his house is damp and dark; the flags in the passage are quite wet; there is nothing but an open grate in the middle of the yard. A fatal case of cholera occurred here, and another case occurred next door. I stepped into the house next door, No. 18, and I found it precisely in the same state.

2617. Then should you consider those houses to be illustrations of the occurrence of cholera in houses free from sanitary defect?—Certainly not. I think that the sanitary defect in these houses is almost as striking as the sanitary defect in the lower parts of the town. They only want, in my opinion, overcrowding to have great mortality.

2618. Many of the defects that you mention so obviously depend upon permanent circumstances, that we may presume that they were the same at the time of the cholera as they are now?—I think they would be the same. I have visited patients in the houses in the upper part of the Ridley Villas, and one or two houses in the upper part are not underground; they are not so sunk; I dare say they are better.

2619. But in these particular houses, that same construction which makes them damp and dark now would have made them, I presume, damp and dark six months ago?—Of course; indeed, the generality of them are three or four feet below the surface; and there is no drainage—at least, the drains seem all to be choked up; and those house in which I was this morning have privies, but no water-closets. I may mention that this house belongs to a very wealthy and respectable man.

2620. Do you happen to know of any cases of cholera having occurred in houses where there are no sanitary defects?—I do not know of any houses in Newcastle where you could not point out sanitary defects.

2621. For instance, there have been some cases in that first class-property constructed by Mr. Grainger; Grainger-street, Clayton-street, Market-street, Nelson-street?—I attended several cases of cholera in Mr. Grainger's property; I had a good many cases. I think that the houses are badly ventilated; the privy accommodation is good; in many cases in Mr. Grainger's property there are water closets, but the ventilation is bad. I would rather refer to the ventilation than the want of water closets, because I believe in Mr. Grainger's new property there are water closets in almost every house. I may mention that this morning I had occasion to be up at Westgate I had heard Westmoreland-terrace mentioned to you as a very healthy place, where, nevertheless, cholera had occurred. I have attended private patients in Westmoreland-terrace.

2622. Is Westmoreland-terrace the same as Westmoreland-street?—Westmoreland-terrace is a continuation of Westmoreland-street. Westmoreland-terrace is a good class of houses; Westmoreland-street are wretched houses; nobody would say that they are in a good sanitary state. I wrote this note about Westmoreland-terrace. "The lane "along the east side is neither paved nor drained. That is the back part of Westmoreland-"terrace. It is about ten feet wide, inclosed within walls of considerable height; the east "wall about ten feet high. There is an ash-midden at the top of the lane, with a hole into "the lane for soakage." I have described now the back part of the east side of Westmoreland-terrace; then I go to the west side of Westmoreland-terrace, and take the back part of it. "The lane on the west side is neither paved nor sewered, a large open "space appearing to have been a general depôt for house refuse of all sorts, and the "remains of several middens are still existing; and, in fact, the situation is bad besides." I have known patients complain of Westmoreland-terrace, though I believe every house in it has water closets.

2623. No privies?—No privies.

2624. But filth round about it?—Yes.

2625. Is it damp?—I do not know that the houses are damp, but the lanes upon each side are neither paved nor sewered.

2626. Do you know whether the houses get rid of their refuse, other than that from the water-closets, by drainage?—Yes, I inquired at Westmoreland-terrace of a patient of mine, and the liquid refuse passes away by a sink.

2627. Did you see the sink?—No.

2628. Do you know what amount of cholera there was in those houses?—I do not know what cholera there was there; it is not in my district. Regent-terrace also has been named to you. I met Mr. Allison this morning, and, speaking about Mr. Allison's house there, I asked him about privy accommodation, and he tells me that his privy and his neighbour's privy are placed under some sleeping rooms in Argyle-street, and the mortality in Argyle-street has been much greater than in any other street in the town. He tells me also that there is so little ventilation in his privy that in summer it is scarcely to be entered, and that to the people above this must be disgusting. Again, if you look at the back part of Regent-terrace, you will find little else but a cluster of privies and ash-pits.

2629. With the almost entire absence of ventilation, I presume, from the position of the privies and ash-pits?—There is very little ventilation there.

2630. (*Chairman.*) Are the houses built back to back?—They are; there are narrow streets placed back to back, with rows of ash-pits and privies on each side. As I know something of this property, and have attended patients in these places, I thought, as this had been mentioned to you as model property, that I might make these remarks.

2631. (*Mr. Simon.*) As regards Mr. Grainger's property, is it well ventilated?—I think the ventilation of Mr. Grainger's property is its greatest defect. I think the ventilation is bad. I attended several cases of cholera in Nelson-street. The back part of the houses forms a quadrangle above the Butcher's Market, and the effluvium from these back parts was very unpleasant. It is unpleasant at all times. In fact I was there yesterday, and found the ventilation very defective. It is very close.

2632. (*Chairman.*) Have they windows at the back?—They have windows, but windows opening into back yards, where there are small middens.

2633. In some parts, as for instance in the houses built round the Exchange, I think they have no through ventilation at all?—No, they have no through ventilation.

2634. How is it in Grey-street?—It is the same thing there.

2635. Are there any back yards?—The back yards are very small—scarcely to be called back yards. The same thing exists about Northumberland-street, which has been mentioned as a very first-class street; they have back yards, but the only exit, by means of which you can empty the privies and ash-pits, is the front door.

2636. (*Mr. Simon.*) Is that the case in many houses there?—Yes, it is. I know several houses where that is the case.

2637. How do they empty them, when it is necessary?—They have to wheel the contents of the privy through the hall of the house into the front.

2638. Do you mean in a wheelbarrow?—Yes.

2639. (*Chairman.*) That was not the case in Mr. Annandale's house, because he had a back way?—No, Mr. Annandale lives lower down.

2640. Higher up it occurs?—I know it is the condition of several of the houses there, and I believe of most of them.

2641. (*Mr. Simon.*) Does your practice extend to Byker?—It does when I go to see private patients.

2642. Not otherwise?—No. I know Byker pretty well; I was there the night before last.

2643. Can you tell us something about it, or about the general sanitary condition of the township; is it better than the general sanitary condition of the borough?—No, it is worse. I know Byker very well; I was medical officer of the district about nine years ago, and have visited it since. It is much worse than any other part of the town; in fact it is not paved nor sewered.

2644. Then about the township of Westgate?—There is a great deal of very bad property in it.

2645. Blandford-street and Blenheim-street, and thereabouts?—I was along Blenheim-street this morning.

2646. Are there any cellar dwellings there?—Yes.

2647. Cellars used entirely as residences?—Yes, cellar kitchens. That is so in Ridley Villas too; the lower rooms are cellars, and very dark.

2648. Only occupied by the servants of the house, I suppose; not by separate households?—Not by separate households there. I do not know that the servants sleep in them; but in Blandford-street and Blenheim-street the lower stories are used as residences for families.

2649. With respect to the streets that have been built of late about the Shield Field and north of the Shield Field, Kent-street, York street, Napier-street, and others, are they an improvement on the former mode of construction of houses here?—No, I think they are not an improvement. I think they only want overcrowding to make a far worse state of things than we have in Sandgate or in Pandon, because the houses are placed back to back; there is no ventilation; the people sleep above the ash-pits and privies, and among them; and you cannot conceive a state of circumstances which will have a greater tendency to develope fever and endemic diseases.

2650. There are other streets about there, such as Shield-street, and Wesley-street, and Carlton-street?—Shield-street is an open street in front, but the back of Shield-street is placed *dos-à-dos* to the back of Wesley-street.

2651. In those parts of the town there are some comparatively open spaces; and there are other parts of the town where the houses stand some distance apart. Are those open spaces usually tolerably clean, or are they much covered with refuse—for instance, about Shield Field?—The open spaces are fast disappearing. There are no open spaces there, except the space in front of Shield Field proper; there are no other open spaces; it is being covered up now with buildings. There is a pleasant green in front of Shield Field proper. It is private property. I believe it is not open to the public.

2652. Then when you get down to some open ground at the end of Buxton-street, how is it there?—That is very filthy; it is neither paved nor sewered, and full of stagnant water; you can hardly drive along the street without the risk of breaking your vehicle.

2653. There is a bit of open ground about New Pandon; is that clean?—No. It is the site of a great fire; it is a most filthy place.

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2654. How about the open ground south of the railway station, towards the Tyne, extending down towards Forth Banks?—I do not know much of that neighbourhood; I have not been there lately.

2655. Is there anything which you would add to your former evidence, as respects the part which you have taken in sanitary matters?—Nothing, except merely to supply Mr. Hume with the information which he wanted. From time to time since 1847 I have always noticed these epidemics. Mr. Clephan has been kind enough to furnish me with some copies of the *Gateshead Observer*, and you will find some letters, one which I addressed to the mayor in 1848, upon the condition of Sandgate—upon the condition of the corporation property there.

2656. (*Chairman.*) On the 13th of March 1848?—Yes. You will find a second letter here, describing Keel-entry. The date is 23d March 1848; you will find that the closing paragraph of the letter recommends the pulling down of this locality, and describes the victims that were daily entering it.

2657. It is pulled down, is it not?—Yes, it was pulled down about five years and a half after my recommendation—a public recommendation to that effect. It was pulled down during the recent epidemic. At a later period the town missionary, at a public meeting, made some remarks upon the corporation property, and was replied to by Mr. Wilson, the corporation rent-collector in Sandgate, who questioned the accuracy of his statements. Knowing the condition of the property, I addressed to the editor of the *Gateshead Observer* a letter, dated the 27th March 1849, in which I pointed out that the charges made by Mr. M'Kadda were "almost identical with those which I "published about a year ago in the *Gateshead Observer*" and stated that "I purposed to "show, in a future communication, the cost to the ratepayers of the corporation fever "dens," in case I could obtain the information from official and accredited sources; and in the following week I wrote this letter, in which you will find the results of an investigation made into the state of Sandgate by me, in company with Mr. Thornton, when we went over a good part of the corporation property.

2658. This is dated the 3d of April 1849?—Yes.

The following are three of the four letters above alluded to.

From the "GATESHEAD OBSERVER" of the 18th of March 1848.

To the Right Worshipful the Mayor, Aldermen, and Burgesses of Newcastle.

Gentlemen,—I have for some time past been anxious to address you on the subject of your property situated betwixt the south side of Sandgate and the river.

I have delayed the execution of my purpose in the belief that you were about to clear away the wretched buildings, and thus abate the appalling state of things of which I complain. But month after month has passed away, and many of the miserable beings who have resorted to them for shelter have fallen victims to the prevalent fever; and no sooner is a wretched, dark, and unventilated tenement emptied by death of its unfortunate inmates than you are unwittingly ready, by your deputies and sub-deputies, to admit into them a fresh set of victims.

I am well aware that there is not a gentleman in your body who would defend such a state of things. The only requisite necessary to arrest the evil is inquiry; and it is with a view to accomplish this object that I submit to your attention the following facts and considerations.

A great part of your tenemented property (I speak only of my own district) is really unfit for human habitation, and should be condemned as such.

The slightest knowledge of the district will confirm the accuracy of this statement. There are rooms in the Flag-entry, Keel-entry, and Half Moon-entry, from which is severally derived the magnificent sum of tenpence—nay, sixpence—a week, into which it would be undeniable and positive cruelty to admit tenants and charge them nothing. It may be asked, What would you do with these people? My answer is, that if there is a scarcity of dwellings for the wandering Irish, it would be better that they should bivouack in the lanes of the neighbourhood than be invited to take up their abode in these miserable pest-houses, into which the pure air of heaven cannot enter, and which abound with an atmosphere surcharged with the supposed causes of fever.

A committee of the Sanitary Association very properly complained of the nuisance created by an old tripe manufactory, into which the refuse of two alleys was constantly discharged, and from which a dead donkey had been removed—a very probable cause of fever in the neighbourhood. The nuisance was certainly abated in one form. The tripe-house was emptied of its filth, and, without the least delay, converted into two dwellings for men, women, and children. The sequel may be anticipated. The father of one of the families who received this cruel hospitality was taken ill with fever and died, his two daughters narrowly escaping the same fate, and a large family of young children left destitute. In the room above there were several bad cases of fever, generated, in all probability, from the same source. In a damp, miserable den, situated in the Half-Moon-entry, occupied by a person named Graham, fever has been seldom absent; and in the room adjoining, which lets for sixpence a week, and in which there is scarcely space for a

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bed to stand, I have attended all the family in fever, four in number, two of them more than once, within the last few months. There is also a room in Maughan's-chare, in which a man of ordinary stature cannot stand erect, where there have been several deaths.

I am adducing these instances almost at random, for there is scarcely a lane where dwellings of this kind are not to be found, and connected with which has been many a melancholy scene. If any gentleman is sceptical in reference to my statements, I shall be ready to satisfy him by showing him the places themselves. The inhabitants will tell their own story. Their lean, cadaverous looks will attest their past and present suffering.

Apart from the inhumanity of allowing human beings to congregate in rooms where they are certain to be visited with fever, the immense expense inflicted on the ratepayers for the support of the sick and destitute should be taken into account; so that it will be seen that the same cruel process which more than decimates the Irish families, making widows and orphans in abundance, oppresses the ratepayer and endangers the life of every one whose duty or avocation requires him to be continually in these localities.

I beg, in conclusion, to observe, that I highly approve of general sanitary measures; but no sanitary laws can be thoroughly useful or perfect so long as owners of tenemented houses regard them merely as sources of income, and levy rents from penury itself, regardless of its wants and its claims. A different class of tenants can compel landlords to remove nuisances, and to keep their properties in repair; but the poor can exercise no such influence, and they must suffer and die in places so remote and obscure that their fellow beings have not an opportunity of redressing their wrongs. A rich and benevolent body, like the corporation of Newcastle, will, I trust, prove that they know the responsibilities attaching to such possessions.

I am, Gentlemen, your obedient servant,

Newcastle, March 13th, 1848. WILLIAM NEWTON, District Surgeon.

From the GATESHEAD OBSERVER of the 25th March 1848.

SANITARY CONDITION OF SANDGATE.

To the Editor of the *Gateshead Observer*.

Sir,—I beg to add, as a postscript to my former letter, a few observations on the condition of the dwellings in the Keel-entry. They are copied from the notes which I made this morning in the dwellings themselves.

The Keel-entry, situated near the middle of the south side of Sandgate, though much improved by the praiseworthy labours of Mr. Wallace, is provided with a surface drain merely; and refuse of various kinds frequently accumulates (as was the case this morning) at the grate through which it ought to be expelled.

Beginning at the foot of the yard, tenement No. 1 is a "killing shop." Tenement No. 2 is a room adjoining, upstairs inhabited by a widow named Coquet. The family consists of seven, three of whom have had fever. Her husband died during the present epidemic. It is well ventilated. 9.—The room below is inhabited by a widow whose husband, Hugh Bell, died three weeks ago. 3.—Pursuing our course up the entry, we arrive at a place of which Patrick Lang, wife and four children, are the occupants. All have been ill of fever: a child died. The room is only partially boarded. It professes to be lighted by two small windows, one without a pane of glass or window frame, and now closed with a shutter; in the other, three of the panes are broken. The ceiling is pervious to wet and dust from the room above. Rain falls in at the west side of the den, which is nearly dark when the door is closed. Pays his rent (10*d.* per week) regularly; but when he applies for repairs, the sub-deputy refers him to the deputy. 4.—Michael M'Laughlin, wife and four children, and a lodger, dwell in the neighbouring tenement. It is partially lighted by two windows, which neither open nor shut; one of them has been broken ever since the present tenant entered. A bed lies under this broken window. The damp and wet find a way through the ceiling, so that the bedclothes cannot be kept clean. The husband has been twice ill of fever. The Catholic priest sent the tenant to the mayor about three months since, to tell him the condition of the place, and declares that he will not visit him until the windows are made to open. I am afraid that the message never reached his worship. Rent 10*d.* per week. 5.—In the room above, on the left hand side, dwells Peter Waters, with his wife and four children. It is lighted by one small window, with six of its panes blocked up. The ceiling bad, the floor wretched, the walls sadly lacking hot lime. The whole family have been laid up with fever, three of whom are just convalescent. The father and mother were in the hospital. 6.—Next door you will find Mary Murray, and four children. Her husband died of fever about three months ago. All have been laid down with the epidemic. Her son, John Murray, and a young man named James Keegan, were removed yesterday to the fever house. The widow is herself recovering from a second attack. Ceiling bad, walls deplorable, and floor as bad as possible. 7.—Barty M'Nimore occupies a garret in which a tall person cannot stand erect. Has a wife and seven children. The children have all had fever, one was in the hospital. Daylight is visible through the roof. The man is obliged to stuff the aperture in it with shavings, &c., to keep out wind and rain; rent 10*d.* per week. 8.—This is the adjoining garret, occupied by James Foley, wife, two children, and two

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lodgers. Foley and a lodger are now in the fever house, having been sent thither on Friday last; the other lodger, King, has also had fever and been in the hospital. Rent as before.

I will finish my account of the entry when I have more leisure, if that will ever happen. Before I conclude, I wish to correct a trivial error in my former communication. I mentioned Maughan's-chare as containing a wretched tenement belonging to the corporation; whoever the proprietor may be, I would recommend him to shut it up or pull it down.

Knowing from experience that the corporation has responded to all reasonable appeals, I feel confident that the discomfort and misery, of which the above is but too true a picture, will not be tolerated, but that the property will be improved to the utmost or closed altogether.

I am, Sir, your obedient servant,

March 23, 1848. WILLIAM NEWTON.

From the GATESHEAD OBSERVER of the 7th of April 1849.

SANDGATE, NEWCASTLE.

To the Editor of the *Gateshead Observer*.

Sir,—I wish to state, most distinctly, that I wage no indiscriminate war against the corporation of Newcastle. The town is undoubtedly under great obligations to that body, and the locality which is the daily scene of my labours has, through its municipal representatives, been greatly bettered in condition.

Streets and alleys have been repaired, and, in the very centre of a poor and destitute population, a washing and bathing house has been erected, and is now in efficient operation. These proceedings show the spirit which pervades them, and at the same time they encourage me to hope that their sanitary measures will be still more extensive, and that, to insure the reform of an abuse, it is necessary only to give satisfactory and substantial evidence of its existence.

I will now proceed, in accordance with my pledge, to give in detail those facts which have long since convinced me that the great bulk of the property belonging to the corporation, situated on the south side of Sandgate, &c., is, in its present condition, totally unfit for human habitation, and is, in fact, unsuited to cover or protect anything in which there is life; that it has long been indispensable to shut up those dwellings which it might be inexpedient or impossible to repair, to repair others, and lower their rents, and thus gradually to ameliorate the condition of the unfortunate inmates.

It is no answer to these demands to say that the corporation's possession of this property is but temporary. Most evils are, happily, only temporary; so are life and death only temporary, and mere landmarks, serving to register the flight of time. But are these reasons or circumstances sufficient to justify an apathy which, if it be not in itself a crime, is assuredly a cause both of crime and suffering? Will it justify a stoicism more frigid than that of Zeno? Will it palliate a cold-blooded fatalism, more deadening and cadaverous than the indifference of Mahomet? I want no answer, but let us try to cure these diseases of our present civilization.

On Sunday last, the 1st of April, I proceeded, in company with Mr. Thornton, the secretary of the Mechanics' Institution, to the west end of Sandgate. In the first instance we went into the Cross Keys-entry—viz, the Pothouse-entry—which, though the drainage is superficial, has been recently repaired, &c., so that the dens are made as much as possible to resemble "whited sepulchres." We will presently see whether or not there be "rottenness and dead men's bones" in the interiors.

Going into the Pothouse-entry by the south extremity on the left hand side, we come to a flight of stone steps, which we ascend. Going as high as we could get, we found ourselves in a garret, in which dwell Patrick M'Dade and his wife. We found them lying on a shakedown, as they have no other bed. The old woman told us that the rain comes in from the ceiling. One window in the room is a fixture, but ventilation is rendered very perfect by means of a broken pane. In the other window, which opens and shuts, and threatens to fall out, there are broken or obliterated squares; by the process of obliteration, we mean that the spaces usually occupied by glass are filled with wood or paper. The walls of the apartment are so soft and damp that, in many places, they can be perforated with a stick. The old man makes and sells matches; the old woman collects rags, bones, and offal; is occasionally relieved by the parish. Rent, eightpence per week. The rent was tenpence; they told the deputy that they were leaving, as they could not pay it. They offered sixpence, and it was ultimately compromised at the present charge—eightpence.

And here we cannot refrain from stating that this solitary act of apparent charity is most refreshing. It relieves the lurid gloom of the picture, as the lightning does the funereal aspect of the storm, and shows that there is light above the pall with which the world is covered. It demonstrates that the human heart, however insensible and apart, circulates in its unseen labyrinths a clear and sparkling stream. It discovers not only an affinity existing amongst the various members of the common family, but it discovers

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the same blood animating the most diversified organizations, like the stream of classic story, which, though it appeared divided, yet still preserved the continuity of its course.

Though this act of charity does not come glowing from the anvil—though it is, alas! cold and phosphorescent—still we receive it as an earnest of the better and real calorific light, and as a token that no man is altogether selfish and depraved.

John Titlaw lives below the M'Dades, a shoemaker, pays fourteen-pence a week. His wife died on Wednesday of cholera (?), a child has had cholera, but is now convalescent. Rain comes into the house; there are ten broken panes; the deputy has refused to repair the windows, or to furnish a lock for the door. Titlaw is told, when he asks for these things, that "if he does not like the house, he may walk out." On a level with Titlaw's dwelling there is a closet, in which are accumulated ashes, ordure, and all manner of filth—very probably causes of endemic disease.

Here, again, we must pause to say that, in consequence of John Titlaw having opened the door to us, he is to be forthwith expelled from his paradise. The proscription is needless, for I think the poor man is dying, and will soon be out of the reach of "Peter M'Craw."

The following is a copy of a letter which he has received, and need we solicit the interference of the corporation betwixt the sword of Herod and this wretched dying man, whose wife died on Wednesday, and whom we found trying to still the troubled cries of a motherless baby? Oh God! what a pandemonium man can make! But Thy dew can soften even the piece of granite that is sometimes put into the breast of a man and convert it into wax. When I picture this miserable creature, Titlaw, huddling his wasted child in his own attenuated arms, and pressing it to that breast which will so soon be as silent as his grave, and think of this persecution, the unbidden tear starts into my eyes, attesting the intensity of compassion in one whose feelings, like an old brush, are well nigh worn out.

"Sir,—I hereby give you notice to quit, and deliver up to me on Monday the 9th of "April, the room you occupy in the Pothouse-entry, or to pay me at the rate of two "shillings weekly for the same.

"Mr. John Titlaw, April 2, 1849." "D. H. Wilson."

I hold the detested original in my hand. We do not wish to make any unnecessary allusion to Mr. D. H. Wilson, but if he does not desire to be further noticed, he must really keep out of the way. Proceeding to the next door, we find Martha Hornsby, ten broken panes in the window, room damp; rent, one shilling a week. Again, on the right hand, resides Jane Main. The dwelling is dark and damp; ten broken panes; rent, one shilling per week. A miserable cavern or excavation, not a room.

On the same side, and next door, we come to the house of John Bates. The room is miserable, and there are nine broken panes. Rent, one shilling per week.

In the garret above Bates, we arrive at John Boag's abode. The rain finds its way into his house, and running through the floor, gets into Bates's room. Rent, eightpence per week. These rooms are approached by a wretched flight of stairs. They have not been whitewashed for five years. An old crone, named Sally Catchside, who keeps a lodging-house in the entry, is a deputy under Mr. Wilson. The tiles on the roof of this house, in the language of Mr. W., "require pointing." We might add, that the whole affair requires pulling down.

Eleanor Chicken (a widow) and three children, live next door. The room very dark, and floor quite wet; rain comes in at the fireside; three broken panes; two closets without doors; usually a brothel. Sally Catchside has impounded her clock for three shillings of arrears.

John Helton, a labourer, wife and two children, are to be found in a den above. Has to keep a dish to "kep" the rain in; rain comes through the ceiling in six places; rent, one shilling a week; one window, a fixture, seven broken panes. One part of the floor so dangerous that it cannot be stepped upon for fear of falling into the room below. Had to put a piece of wood into the ceiling to keep the family above from overlooking and annoying them; plaister off the walls; has to stuff the chinks and crannies with paper, &c., to keep the wind out; rent, one shilling a week. "Old Sally" threatens them with a padlock if the rent is not ready. This is the only method they have of getting a lock.

Elizabeth Heron, another old woman, and an idiotic lad, are in the garret above the last dwelling. It is a wretched place, and would require a Cruikshank to represent it. *Punch*, in a spirit of pathetic humour, has talked about a "prize pauper." Here is a den that he should occupy when he is found. The old woman says she has had a terrible night with the rain, which comes through the roof like a sieve. There is, however, one hole through which it "pours." Is obliged to keep a washing-tub standing at that place, and he is obliged, when it rains hard, to get up and empty it out of the window. Seven broken panes; sees daylight better through the tiles than through the window.

We counted eighteen holes in the roof, some of which are stuffed with straw. The poor old woman has to move the bed about so as to avoid the wind and rain, a species of

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domestic navigation in which she appears to be very proficient. Pays eightpence a week; has parish relief; no fastening to the door. *Vacuus viator cantabit coram latrone.*

So much for the Pothouse-entry, of which this is but a faint portraiture. These remarks are, perhaps, sufficient for the present.

I am, Sir,

April 3, 1849. Your obedient servant,

WILLIAM NEWTON,
Medical Officer to the No. 2 District of the
Newcastle Poor Law Union.

2658. (*Mr. Simon.*) You live in Hood Street?—Yes.

2659. And you move about a good deal in those higher and newly-built parts of the town. Is there in those levels much odour from the gully gratings?—There is, all over the town. I have been up Lovaine-row, along the Westgate, through the better parts of the town, to-day; and there is ordure lying about everywhere.

2660. I do not mean that. What I ask is this—whether, as you walk along these better streets, Percy-street, Grainger-street, Clayton-street, Market-street, Hood-street, Grey-street, Northumberland-street, Nun's-street, Nelson-street, and so on, there rises from the gully gratings any strong effluvium of foul matter?—In many parts there does. I have often found it just at the angle formed by the news room at the corner of Market-street; there is a horrid stink there occasionally.

2661. What corner of Market-street is that; where Market-street joins Grainger-street?—Yes, and in several places besides. In Nun's-street. I may mention that Mr. Allison this morning, in conversation, told me the following:—he lives in Regent Terrace; he says there is a drain passing underneath his kitchen made with a single flag on each side, and covered by a single slate, and that the stench from there is intolerable; he regrets that he did not give it in evidence himself,—he forgot it. This is the model locality cited by Dr. White and Mr. Nesham, and which was brought forward to illustrate that there was not any necessary connection between sanitary defect and cholera, inasmuch as cholera had here occurred in a district where the sanitary condition must have been perfect.

2662. (*Mr. Town Clerk.*) It is a private drain you are referring to?—Yes.

2663. (*Chairman to Mr. Town Clerk.*) Have you control over the private drains?—No; we might force them now to make private drains

2664. To your satisfaction?—Yes, since the 4th of August 1853.

2665. In leasing property for building purposes, have the corporation been accustomed to introduce any clauses or covenants with a view to sanitary regulations. For instance, in letting for building purposes the property which has come into your hands, in the course of making the new streets, have you ever introduced any covenants to the effect that the builder should provide sewers, privies, and ash-pits, or water-closets, or anything of that kind?—They have always been a class of buildings where there was no occasion for any such covenants; we have left it to the discretion of the owner.

2666. Have you ever, in leasing any property so required for new streets, introduced any stipulations or covenants, such as that of not building houses back to back?—I should think very likely we have, as to prescribing the mode of building.

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2667. (*Chairman.*) Now, with reference to the allegations against the Board of Health officers; do I rightly understand you to have complained, or to have been of opinion, that the organization of the house-to-house visitation system and the provision of extra medical attendance for that purpose was not carried out with sufficient speed?—It was very badly carried out; it was tardily and then imperfectly carried out. There has never yet been a house-to-house visitation of the town.

2668. Were you also of opinion that houses of refuge for those not affected, and hospitals for those who were affected, ought to have been provided sooner than they were?—Yes; I looked to the regulations which had been adopted in 1832, and I found that they provided for the sick; and I was of opinion that it was humane in the first instance, and politic and wise in a sanitary point of view in the next, to separate the sick from those that were well; which would have diminished overcrowding, and provided for the treatment of the sick. That was not done.

2669 Then I understand you to complain that the sick and the healthy were not separated?—Another charge is this, that no arrangement was made by the officers of the Board of Health to get the dead speedily buried. The dead lay with the living.

2670. You also complain of better arrangements not having been made for the removal of the corpses from among the living beings?—Yes. I think that in the first instance I may say, that in 1849 the Board of Health were kind enough not to interfere in Newcastle,

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The board of guardians delegated to myself and two or three other gentlemen the dealing with cholera in 1849. We did institute, as far as we could, those arrangements to which I am alluding, and we found that cholera diminished then. I think there ought to have been the same system instituted again.

2671. Then I understand you to complain of the interference of the Board of Health in the recent epidemic of 1853?—Yes; I think that they aggravated it very much. I thought at the very outset of the epidemic that you ought to have diminished overcrowding. Supposing you were called to an entry with a few cases of cholera, and the houses were very much overcrowded, I thought you ought to have prepared hospitals, to have carried the sick people there instantly, and to have had other places where you could have sent the destitute, so as to have got the places clean.

2672. I understood Mr. Rayne to complain that when medical students could not be obtained immediately for the purposes of the house-to-house visitation, junior practitioners of the town were not employed; is that so?—There was no want of students, but there was nobody to get them. I got all the students I wanted for my district. I got several for other parties also. Mr. Grainger will recollect that, on the Sunday night when I told him that I thought he could have four students, and gave him the addresses of several others.

2673. Do I rightly understand you to complain that Mr. Grainger did not take advantage of the information which you offered him, with reference to the names and addresses of medical students who might be available for the organisation of this house-to-house visitation system?—Mr. Grainger received every information which I gave him about students.

2674. But do you complain that he did not avail himself of that information?—Mr. Grainger never organised a house-to-house visitation system.

2675. Do you complain of his not having done so?—I think that it ought to have been done. My charge about the house-to-house visitation system is this, that it was done too late, and, when done, it was done by strangers who did not know the localities; consequently, very dense and populous places were not visited as they should have been.

2676. That is part of your complaint—that the Board of Health and their officers, with other strangers, interfered?—Yes.

2677. You did not want to have anything to do with them?—We should have had no objection if they would have acted with energy, and would have assisted at all in saving the town from pestilence; but they destroyed our own self-reliance, and destroyed all local action, and prevented the medical profession from taking the matter up; and they did not institute, on their own part, such measures as the crisis needed.

2678. I think, also, you complain of a cholera prescription or formula not having been issued by them?—Yes, I complain of the want of a prescription. I spoke to Mr. Grainger privately about a prescription, wishing it to be issued authoritatively. Mr Grainger met the medical officers of the union. I had drawn up such a thing as I thought might do, and which I submitted to him. Mr. Grainger, whilst highly approving of what I drew up, thought it inexpedient—that it might excite alarm, and it was not issued by Mr. Grainger; but that which was refused by Mr. Grainger was done by Dr. Gavin, perhaps a week later.

2679. I think you also complain of Mr. Grainger for having used at some such meeting the expression, "Science knows no cure for collapse"?—Yes, "Science knows no remedy for collapsed cholera."

2680. Is there any other point of complaint?—These are the main points. I think that the Board of Health, by interfering, aggravated materially the mortality in the town of Newcastle.

HENRY HARVEY, Esq., sworn.

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2681. (*Chairman.*) You are medical officer to one of the districts of the Poor Law Union of this town, are you not?—Yes.

2682. How long have you occupied that position?—Since 1837.

2683. (*Mr. Simon.*) Your district includes the parish of St. Andrew?—It does.

2684. Does it all lie within the old boundary of the borough?—I think not.

2685. You have part of the township of Jesmond in your district?—Yes.

2686. And part of the parish of St. John?—Yes.

2687. The area under your care is 763 acres?—It is about that.

2688. Therefore probably your practice extends considerably into the less densely inhabited parts of the town?—It does so.

2689. You have a population under your care of about 17,500?—I think it will be about 24,000, including the Jesmond part of it.

2690. Have you any notion of the number of houses which as parochial surgeon you attend?—No.

2691. Or the number of poor population under your care as parochial surgeon?—No, I cannot say that.

2692. We should be glad to arrive at the knowledge which you have of the condition of the poor and labouring classes in your district. First of all, perhaps you can tell us something about their lodgings. Is it frequent for whole families to live in single rooms?—Generally so in every district.

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2693. They do not take other lodgers with them frequently?—Not frequently.

2694. Are the houses of the poor tolerably ventilated through your district?—I should say better than in the districts of the town generally.

2695. The houses are further apart?—The streets are wider, and there is a better class of house.

2696. How are they off for privy accommodation?—Some parts of it are very deficient. Many houses are tenemented property, having no privies at all.

2697. Is that a frequent evil in your district, affecting a considerable proportion of the poorer classes there?—A good many of the houses have none; but not a large number, I should say.

2698. Do you mean including the better kind of houses—the shopkeepers' houses?—No; I refer to the houses of the lower classes.

2699. Privies exist in your district. Are they generally privies, where all the produce of the privy lies above ground; are they without drainage?—In some of the tenemented properties there is no drainage to the privy, it lies upon the surface in conjunction with an ash-pit.

2700. Is that the general arrangement in the poorer houses of that district, where a privy does exist?—It is so.

2701. Are nuisances and stinks complained of in connection with these privies and ash-pits?—Where the contents have accumulated for any length of time, they become very offensive.

2702. Is that generally the case, that their contents do accumulate for a long time?—Till they are running over.

2703. What then leads to their being emptied?—People not being able to gain admission into the privies, or the surgeon noticing it, and getting the inspecting officer to have it emptied for them, or to compel them to empty it.

2704. Are you aware of any other authorities taking the initiative in getting these nuisances removed?—It is merely the medical officers of the union, and the inspectors of nuisances.

2705. Without any complaint being made to him, does the inspector take the initiative and go to the house?—He has the power to do so.

2706. Practically does he?—In many instances I have heard of it.

2707. Is the water supply good to the houses of the poor?—I should say almost every house, or every yard, is supplied with water.

2708. With a tap of the Whittle Dean Company?—With a tap of the Whittle Dean Company, and also from public pants—there are many in my district.

2709. Had you any occasion to find fault with the quality of the water supplied by the Whittle Dean Company last year?—I heard complaints against it. I used it the whole time—I never drank it—I merely used it for tea. I made no difference myself. I never drink it, and never did, but always use it in tea, and continued to do so.

2710. Was it clear?—I never heard the servants complain of it in my house, and therefore I am not aware how it was there; but I have heard of instances where it was not clear.

2711. Are you aware whether it had any disagreeable smell?—No.

2712. You never observed any disagreeable smell with it yourself?—No.

2713. Nor disagreeable taste when it was boiled?—No.

2714. You only tasted it boiled?—Boiled.

2715. So that the amount that you knew of its quality is that it was muddy?—From reports that I have heard, it was muddy; and I have occasionally seen it with a puddled appearance.

2716. How is the paving in your district about the houses of the poor?—I should say it is not bad,—most of the lanes are paved,—of course the main streets are; and I should say most of the lanes, in conjunction with them, are paved also.

2717. Are they evenly paved, or do they retain much refuse matter in the interstices of the paving?—They descend to the centre, which forms a sort of surface-drain or gutter in some of the alleys, for want of an under drain.

2718. Does that surface-gutter carry off refuse matters from ash-pits and privies?—When there is sufficient flow to carry it off; if not it lies on the surface.

2719. Is that a frequent incident in your district?—Yes, there are several of those lanes.

2720. Is scavenging effectual in your district?—I should say it is in the main streets.

2721. And in the back streets, or rather in the courts and alleys?—The deficiency, I think, depends upon the want of energy on the part of the inhabitants of tenemented property. They will not be at the trouble of carrying their refuse to the scavengers' carts, which pass daily. There is a great want of energy on the part of the inhabitants of the lower class; it might be much better if there was a little more effort used by them.

2722. For the removal of the refuse, in these courts and alleys, does not the scavenger go to the house to collect the refuse?—No.

2723. The inhabitants have to carry it from their houses or rooms to him?—The scavenger has nothing to do with the houses, I understand.

2724. I mean the dust collector, or whoever takes that office?—They carry it to him.

2725. Even if there is a long court or alley, does he not pass up it?—No, he cannot pass up it with his cart.

2726. (*Mr. Town Clerk.*) The cart will not go up it?—The cart will not go up it; they generally bring the refuse down and place it at the end of the alley to await his arrival; and, as he comes past, he throws the contents in, and leaves the empty boxes for them to get when they come back.

2727. (*Mr. Bateman.*) I suppose the theory is that, if the inhabitants did their duty in that respect, there would be no accumulation?—It would be much improved.

2728. (*Mr. Simon.*) Are cattle kept in your district to any extent; I mean within the borough?—Yes, to a considerable extent.

2729. Are pigs kept?—In some instances they are; but that nuisance is much abated of late.

2730. Was it much abated before the 1st of September last year?—Yes, it has been gradually abating for some years; since an inspector of nuisances was appointed, there has been a great improvement in that respect, I may say for a few years past.

2731. Do you mean the inspector of nuisances of the board of guardians or of the corporation?—The board of guardians had one for a length of time.

2732. Do you know any cases at present of cattle or pigs kept under dwelling-houses in your district?—Yes.

2733. Do you know many such instances?—I cannot bring many to my recollection just now, but I could give instances.

2734. Will you mention some?—In Carnaby's-yard in Gallowgate. There is one cow-house there containing four cows underneath a dwelling-house. On the opposite side of the yard there is one with two underneath a dwelling-house; that is in one yard, and there are many others.

2735. Do you recollect any other instances in your district?—I cannot bring them to my recollection just now. I have little doubt that there are such instances, from the number which are kept in the district.

2736. Is it in the vicinity of Gallowgate?—In Gallowgate.

2737. Cattle are extensively kept there then?—Extensively,—cows.

2738. Are they complained of?—No; almost every house has its cow, and therefore there are no complaints made.

2739. Do they, in your judgment, become a nuisance there?—Great accumulations of manure take place from them.

2740. What arrangements are made for the removal of that manure?—It awaits the farmers' carts, when they have time to remove it.

2741. Is there any systematic supervision of these houses as to the removal of refuse? I should say not.

2742. Had you much mortality from cholera in your district?—Yes, a good deal.

2743. Where were the chief groups of cases?—In Prudhoe-street, Liverpool-street, High Friar-street, Crescent-place, Vine-lane, Mortimer's-court, and Mackford's-entry.

2744. Is the sanitary condition of those places good?—In many instances they might be improved.

2745. Speaking first of Prudhoe-street, have they open privies?—There is a deficiency there in some of the houses.

2746. Where privies exist, are they open?—They are open.

2747. With middens in connection with them?—Yes.

2748. At the time of the cholera were there accumulations in those middens?—From time to time there are accumulations; as they accumulate to a certain extent they are generally removed.

2749. Were there offensive smells about the houses?—In some of the back dwellings and close courts there were.

2750. Is Liverpool-street good?—Bad.

2751. Crescent-place?—Defective in ventilation.

2752. With privies?—With open privies.

2753. Dalrymple's-yard?—Bad.

2754. Has Dalrymple's-yard got any sufficient privy accommodation?—It is very deficient.

2755. Has it got any drainage?—None.

2756. Does the filth run down on the surface?—Yes.

2757. Is it a steep place?—A slight descent.

2758. Does the drainage of privies and middens and cow-dung heaps run down the middle of that lane?—From the cow-dung heaps it does; but their privy and midden are in the back premises, and consequently cannot get there until they are full, and then the refuse is thrown out in front, and then passes down this gutter.

2759. What population have you in Dalrymple's-yard, how many holdings?—In the upper part, and in the new buildings, there are about twenty-four rooms; it is private property, each room let to a separate tenant or family.

2760. What privy accommodation have they got?—There is one privy about $2\frac{1}{2}$ ft. in width, I should think, with a bar to sit across, with no top, and with a midden stead adjoining about the same size, for the whole of that property.

2761. Is that immediately at the back of the houses?—Immediately at the back.

2762. Is it in a cleanly condition?—It is in a very filthy condition just now.

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2763. Stinking?—Stinking; it was cleaned out about a fortnight ago, and I think it is almost as bad as ever; it is so small for the population.

2764. (*Mr. Town Clerk.*) Is that a private yard, or a public thoroughfare?—Part of it is corporation property.

2765. Is it let on lease?—The lower part of the yard belongs to the corporation, which I am sorry to say is in a very bad condition. The middle part of the yard belongs to the representatives of Mr. Archbald, but the upper part belongs to Mr. Hindhaugh.

2766. (*Mr. Simon.*) Do some of the houses belong to the corporation?—Yes, some of those at the bottom of the yard.

2767. Are they in a better condition than those at the top?—I should say decidedly not; they have no privy at all, I understand.

2768. (*Mr. Town Clerk.*) They are let to tenants, I suppose?—Yes; there is a good deal of waste ground also.

2769. (*Mr. Simon.*) Do you consider those lower houses, which belong to the corporation, to be fit for human habitation in their present state?—Scarcely so, I should say, they lie so low down below the surface.

2770. (*Mr. Town Clerk.*) They are low in situation?—They lie below the surface; you drop down to go into the room.

2771. (*Mr. Simon.*) There is a place which has been mentioned to us in that district, Sweeper's-entry; what is the condition of that property?—It is very bad; it is corporation property also, I believe.

2772. Of how many houses does it consist?—There are two houses, I think; one of them is entered from Dalrymple's-yard, the other is entered from Sweeper's-yard; I think there is only one door, for one of the houses is entered from the other yard.

2773. Are they provided with privy accommodation?—No, none.

2774. Is water laid on to them?—I cannot say whether it is in that yard or not.

2775. Are they well ventilated?—I have been obliged to get one of the rooms locked up in consequence of being unfit for human habitation, within the last few weeks.

2776. To whom do you make your representations on that subject?—To the inspector of nuisances. It was a low room, dark and damp,—so dark, even in daylight, that when I have had occasion to go in I could not see a party in bed without a candle. There were two beds in the room, and I represented it. I am very happy to say that the beds are taken out, and that, instead of being a dwelling-room now, it is to be converted into a washhouse.

2777. (*Mr. Town Clerk.*) The inspector promptly complied with your recommendation?—He did.

2778. (*Mr. Simon.*) Do you consider the remaining part of that house to be fit for occupation?—I should say decidedly not.

2779. Is there filth about on the pavement of that court?—Yes.

2780. Does it stink?—It does.

2781. What is the condition of Mackford's-entry?—It has been very bad; but the owners of the property, since the outbreak of cholera, have had the court drained from end to end with the circular pipe drains. They intend removing the privies and the ash-pits and putting up water-closets, so that there is a great improvement likely to be made.

2782. How was it at the time of the eruption of cholera?—It has always been in a very bad condition, and was at that time.

2783. (*Mr. Town Clerk.*) It is a private entry?—It is a private entry.

2784. (*Mr. Simon.*) There was some complaint made in that district, I believe, about a collection of scavenage, or depot of filth, was there not?—There was a complaint made about the accumulation of night-soil and filth upon the roofs of the adjoining houses there. My attention was called to it by Mr. Annandale, a surgeon, as being an annoyance to him. He could not open his windows in consequence. It came out of what is called the Orphan House, I think. It is a large tenement.

2785. (*Chairman.*) It had been thrown out of the window?—Yes, and had accumulated.

2786. (*Mr. Simon.*) Is the Orphan House a charitable institution?—No, it is private property now, and is let out in tenements.

2787. Without privies?—I believe there is a privy now, but for many years it has been without one.

2788. There was no privy there at the time at which they threw their excrement on to their neighbours' roofs?—Yes.

2789. The collection of dirt that I refer to was some depot of town scavenage, town filth, arising from scavengers emptying their carts there; is that in your district?—There is such a place, I believe, or has been such a place, in Gallowgate.

2790. At the corner of Gallowgate?—Yes.

2791. What is the history of that nuisance?—It is a vacant yard, occupying a considerable space between Newgate-street and Gallowgate; and some time ago there were complaints made to me of large accumulations of filth there; and the parties in the neighbourhood told me that the corporation carts were in the habit of emptying their street sweepings there, and allowing them to accumulate for the farmers' carts to remove them. I know that once or twice I have had occasion to complain of the immense quantity of matter lying there, but in each instance it has been removed.

2792. Offensive matter?—Offensive matter; extremely so to passers-by.

2793. Did the persons passing along Newgate-street and Gallowgate complain of it?—They did.

2794. Did their complaints extend over a long period of time?—No, it must have been about the autumn that I heard it first.

2795. Had the same practice existed previously to the autumn?—I cannot say that.

2796. It was only in the autumn that your attention was directed to it?—Only then.

2797. Was it during the prevalence of the epidemic that this accumulation existed there?—Previously to that.

2798. Did it continue during the prevalence of the epidemic?—To a certain extent. I would not say it had accumulated entirely from the emptying of the corporation carts. The owner has horses, and the accumulations from his own horses took place there.

2799. Did the nuisance continue altogether for some weeks?—It existed there for a considerable time in the autumn.

2800. Was that from the emptying of the scavengers' carts?—Partly from the emptying of the carts, and partly from the refuse of the owner's own stable.

2801. Of what do the contents of these scavengers' carts consist?—All he collects, I imagine, from his house-to-house visitation, and the street sweepings. Now I think the depot is upon the Leazes, within a very short distance of dwelling-houses. That, also, I should like to direct attention to.

2802. First, as respects its presence in this particular locality, and what it consists of: do I rightly understand that the scavengers collect, not only the sweepings of the streets, with horse-dung and granite-grindings, and whatever else may be there, but also the contents of kits and of ash-pits?—I imagine that is so. That is the object of their parading the town, to get the ash-pits emptied and the kits containing night soil.

2803. To the best of your belief the accumulation in this district contained a considerable portion of nightsoil?—I should say so.

2804. Where is this adjourned to now?—It has gone now I think to the Leazes, a little higher up Gallowgate.

2805. What houses does it adjoin at present?—It does not exactly adjoin any; but it is not a great distance from Gallowgate and Pitt-street, the front of Pitt-street and Hill-street.

2806. How far may it be situated from those houses?—I should think within thirty yards of one house.

2807. I observe that the houses there are arranged in a sort of square, so that one side of Gallowgate would form the south side of the square, Spring Garden-terrace would form the west side, and St. James's-street and Leazes-terrace the east side?—Yes.

2808. Is that a true description of the locality?—Yes.

2809. About how far would it be from each of those sides?—From the houses in Gallowgate about eighty yards, I should fancy.

2810. And from the others?—From St. James's-street, nearly double the distance.

2811. From Spring Garden-terrace?—The same as from Gallowgate.

2812. What are those houses which are still nearer to it?—There is one dwelling-house close to it, a private house.

2813. Does the occupier complain of it?—I have heard complaints, not lately.

2814. Have you heard complaints in the more distant houses?—Latterly there has been a good deal of complaint. It lies upon the edge of a hill; and since the thaw has taken place, there has been a considerable flow of water, and this has washed the accumulation down into Gallowgate again. It is on the exact edge of the hill, and an immense quantity of it has been washed down into Gallowgate again.

2815. Have you brought those complaints under the notice of the authorities?—I have not; it has happened only recently.

2816. Did you bring the former complaint under the notice of the authorities, the nuisance occasioned in the lower part of Gallowgate?—I did so; there has been in consequence a drain placed there, since I complained.

2817. Do you consider the present a proper place for it?—Not at all.

2818. Is there a large accumulation there?—A considerable quantity.

2819. Many cart-loads?—Many.

2820. If there were any epidemic disease at the present moment in Newcastle, should you think that to be a dangerous place to that neighbourhood?—I should think it might assist in aggravating a disease.

2821. (*Mr. Town Clerk.*) And you have now given notice of it; I take this as a notice?—I have.

2822. (*The Clerk to the board of guardians.*) When it was in the lower part of Gallowgate, was it not removed twice a week by the farmers' carts?—There was no stated time for removing it, but it remained there till they could get the farmers' carts to remove it.

2823. But on Tuesdays and Saturdays?—If the carts came in.

2824. It was generally on those days?—Generally.

2825. (*Mr. Bateman.*) What is the class of people who inhabit Gallowgate?—The working class and labourers.

2826. Are they Irish?—There are very few Irish; chiefly English.

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2827. Do they consist of freemen to a great extent?—A great number of freemen.

2828. (*Mr. Town Clerk.*) Who have the privilege of depasturing cows on the town moor?—Yes.

2829. (*Mr. Bateman.*) And that leads to the keeping of cows there?—Yes.

2830. (*Mr. Simon.*) Is Green-court in your district?—It is so.

2831. Had you several deaths from cholera there?—There were deaths from cholera there, and in the courts adjoining. In Mortimer's-court there were several deaths.

2832. What was the sanitary condition of that court?—The court itself is not bad, but there is an open sewer which comes down from the Darn Crook, and passes through the end of the court, and through Green-court, a large uncovered sewer.

2833. Does it stink?—It does most awfully.

2834. Do triperies and tanneries discharge themselves into that sewer?—Both.

2835. Do the inhabitants of the court complain of this?—The whole of Newgate-street complain of it at times.

2836. Is it within your knowledge that soakage from this sewer had extended to a considerable depth into the cellar of one of the houses in the court you mention?—Not only in that court, but also the court on the opposite side.

2837. That the cellars were extensively flooded in both courts from this open sewer?—Yes.

2838. Do you believe that that flooding from the sewer had any influence in increasing the mortality which prevailed there?—I have little doubt that it might have assisted in doing that, owing to the effluvia arising from it.

2839. (*Mr. Bateman.*) Do you know that the ground floors of those houses have been several times filled with water in this way?—At times they have.

2840. It is not uncommon for the whole court to be flooded?—In heavy rains.

2841. And for the refuse of this sewer to be washed into the court?—Yes.

2842. (*Mr. Simon.*) Is it the case that the privy of that court is merely a sort of shelf, placed over this ditch?—Just so.

2843. Do you consider that open sewer compatible with the health of the district through which it passes?—Very injurious to the health of the parties.

2844. Is Spital Tongues in your district?—It is so.

2845. Spital Tongues is situated at about the same level as the barracks, is it not?—A little lower, but about the same.

2846. Does it lie within the ancient boundary of the borough?—It does.

2847. What is the condition of that property?—Previously to the outbreak of cholera, I am sorry to say it was in anything but a good condition. There was an immense accumulation of filth in the shape of ashes and various other things, in front of the dwellings of the pitmen. I cannot state the amount of it. It had accumulated there so much so, that I represented it to the inspector of nuisances; he visited a part, and a very short time previous to the cholera he succeeded in getting it removed. The houses are in good condition; they are clean, and I should say well ventilated, when the parties choose, for they have windows back and front.

2848. Was there considerable crowding there?—Not more so there, I should say, than in pit houses generally. I should say the houses there are a better class than many of the pit houses.

2849. (*Mr. Town Clerk.*) It is a pit village?—A pit village.

2850. (*Mr. Simon.*) Was this collection of refuse in front of the houses?—In front of the houses.

2851. Was there solid and fluid refuse there?—There was everything you can imagine, both animal, vegetable, and mineral.

2852. (*Mr. Bateman.*) Does the ground fall from where all this manure and refuse is placed down to the houses?—There is a small paving in front that descends from the houses into a sort of surface gutter in front three or four feet from the door of the dwelling, and on the opposite side is where the accumulation takes place.

2853. Does the ground rise there?—A little.

2854. (*Mr. Simon.*) To what distance from the houses did this accumulation extend?—It extended to the doors at last, it got so bad.

2855. How many days before the eruption of cholera was this?—It was about six weeks before that I represented it.

2856. Had any accumulation begun again by the time of the outbreak?—I should say so, but not to the same extent as before; it was merely a commencement—merely a nucleus.

2857. Was there an accumulation of filth before these houses at the time when cholera broke out there?—I should say not to any extent.

2858. During the few weeks that intervened between your procuring the removal of this, and the outbreak of cholera, where do you suppose that the inmates of those houses discharged their kits?—On to this heap; they came to the door and just pitched it out.

2859. So that at all events there was accumulated there during those weeks whatever the inhabitants had to contribute of that kind?—Yes.

2860. So that it is merely relatively that you speak of the place as free from accumulation or free from filth?—Yes.

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2861. Would this material have soaked into the floors of the houses?—No; in consequence of the houses being raised a little about it, probably not.

2862. (*Mr. Bateman.*) Are the floors of the houses above or below the level of that paving which you speak of?—Rather above; there is a gentle descent from the house into this small channel.

2863. (*Mr. Simon.*) When you made your professional visits to these houses, did you find entering them disagreeable during the last few weeks previous to the outbreak of cholera?—No; the accumulation having been removed, I had no reason to complain of it. It seemed in a very nice condition,—a very clean and healthy condition; the houses themselves are remarkably clean internally. The class of people all are so.

2864. But during this period they were emptying their refuse in front of their houses on an unpaved surface?—They were.

2865. Was that surface sodden with the filth?—There is no doubt of it.

2866. If you had turned up a spadeful of that soil would it have stunk?—Most decidedly, I should say.

2867. With the action of the heat of summer on that soil, would it have evaporated offensive smells?—I should say it would have been very liable to do so.

2868. (*Mr. Town Clerk.*) There is no public way or thoroughfare through Spital Tongues—A footpath there is.

2869. No public causeway?—No public causeway.

2870. (*Mr. Simon*) Did you see any evidence of scavenging going on there?—No.

2871. (*Mr. Bateman.*) How are the people supplied with water?—They are well supplied with water there. There is a beautiful well at the west end of Spital Tongues,—a beautiful spring.

2872. (*Mr. Simon.*) At the time when this accumulation of refuse was removed, was it done by the scavengers?—No; the inspecting officer would compel the owners of the colliery to do it, I suspect.

2873. (*Mr. Town Clerk.*) The scavengers had no business there?—No.

2874. It is private property. It is a village erected for the purpose of the colliery, which is sunk on that particular ground?—Yes; and a nuisance is to be removed by the owners of the colliery at the suggestion of the inspector of nuisances.

2875. (*Mr. Bateman.*) Do you remember how many deaths from cholera there were in Spital Tongues?—No; I do not recollect at this moment; but I see the owner here.

2876. (*Mr. Hunter.*) There were twenty-eight deaths in the village.

2877. (*Mr. Simon.*) Do you know what population there was there?—I think about 500.

2878. (*Mr. Simon to Mr. Harvey.*) Did you, during the prevalence of the epidemic, come into contact with the officers of the Board of Health?—Occasionally at the board of guardians.

2879. Are you cognizant of their operations in the town?—I know the recommendation of the house to house-visitation system, and the securing of medical assistants for the purpose of that visitation.

2880. Have you any opinion to offer on any of those subjects?—Not any.

2881. Have you any reason to impute to those officers any neglect of their duty, any inefficiency or remissness?—I should say not, as far as my knowledge goes.

2882. Do you believe that they did all that it was in their power to do in aid of the authorities for the mitigation of the disease?—My idea is, that they did all that was possible. The time was short. It was very trying for them. I should say they did all that it was possible for them to do.

2883. Is there any other matter relative to your district, or any other subject on which you would wish to give evidence?—No, I think not.

2884. (*The Clerk to the board of guardians.*) Whenever you have had occasion to make representations of nuisances to the guardians, have they not been invariably attended to promptly?—Immediately.

JOHN SANG, Esq., sworn.

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2884. (*Mr. Simon*). You are medical officer to the western district of the Poor Law Union of this town?—I am; of No. 5 district.

2885. Is that called the Westgate district?—It is.

2886. Does any part of that district lie within the old municipal boundary?—Part of it does; the greater part is without.

2887. There are some parts of that district of which we have an account in a letter bearing date the 18th of December, 1849, written by you, and addressed to Mr. Rawlinson, from which I will quote to you two or three passages. "I may first name "Buckingham-street, Oystershell-lane, Abinger-street, and Diana-street, as places "densely inhabited, but not altogether by the lowest class. There are no sewers; chiefly "small drains from the houses running through the various passages and emptying "themselves into the streets, consequently they are in a very filthy and unhealthy state, "frequently emitting most offensive smells. These streets are only partially paved, and "some not at all. Water plentiful and air good. Principal want, drainage and paving." Do you confirm that statement now?—I do.

2888. That description would be as applicable now as it was then?—Nearly so.

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2889. In what respect would it be less applicable?—Some of the streets have been partly paved. There has also, I believe, been a common sewer made.

2890. Are the houses drained into that common sewer?—No.

2891. (*Chairman*). What improvement in the public health do you think a sewer without house drainage would effect?—Very little, or none.

2892. (*Mr. Simon*). The next passage is this:—"Pitt-street, Wellington-street, and "Hill-street are in a very bad state, more particularly the former, in which there is a "portion of a sewer formed in the upper and lower parts, but no drains from the houses. "The street at present impassable from the want of paving. Water is plentiful, but the "light very insufficient. In this locality both fever and cholera have prevailed." Do you find the sanitary condition of that locality improving?—Not much.

2893. Did cholera prevail in that locality at its last visitation?—Very much.

2894. Did it occur also in the locality I first mentioned about Oystershell-lane?—Very severely.

2895. The third paragraph is:—"Dixon's-buildings, Spring Garden-lane, and Seaham-"street are in a very deplorable state. There are no drains; all the refuse from the "adjoining buildings are thrown upon the surface. In some parts the filth of the houses "has accumulated nearly a foot above the level of the footpath. Cholera and fever have "been very prevalent in Dixon's-buildings, chiefly inhabited by the poorer class. A "sufficiency of water and air; good drainage and paving chiefly required in this district." Would that description apply at the present time?—Quite so. I drew out a report in the month of November last, which would confirm what I state. I sent it to the board of guardians.

2896. A further passage runs as follows:—"Robson's-buildings, Peel-street, and its "various entries are in a very filthy and unhealthy state; drainage very incomplete; "water sufficient, but light and ventilation in many parts bad. Fever and cholera have "both prevailed here—the former of frequent occurrence—and, situated as they are in a "thickly populated district, may justly claim serious attention?"—Yes.

2897. Have you seen any results of serious attention there since?—I have not, in Peel-street.

2898. "There are also portions of Blandford-street requiring paving and drainage; "water and light sufficient; fever occasionally prevails." This therefore would represent pretty accurately what is the present state, as well as what was the state in 1849?—It would.

2899. Both as regards the state of drainage, paving, ventilation, and crowding, and also as regards the prevalence of diseases?—Yes; I think Peel-street is worse than before.

2900. I find also another paragraph to this effect:—"Complaints have been made from "time to time in order to obviate the many nuisances, but as yet without much effect." To whom have those complaints been addressed?—I believe to the owners of the property.

2901. Is it an understood thing in this district that the corporation have no control over these evils?—They had not previously to August, I think.

2902. Since August has any alteration been made in the evils?—Yes, the streets have been better scavenged.

2903. And also the courts and alleys?—They have been rather better. There has been no alteration in the drainage that I have observed.

2904. (*Chairman.*) You stated, in your report of November 1853, that in the district entrusted to you were comprised many of those new streets which had risen up in the suburbs within the last few years; and you add, "No sewers were laid down when the "streets were erected?"—No.

2905. "The sewerage, drainage, and paving were almost altogether neglected?"—Yes.

2906. "To this day, most of the streets remain unpaved; holes, ruts, and sloughs are "common. The earth is saturated with refuse; liquid impurities run along the surface, "and in some cases into the very houses of the inhabitants. Privies, and open ash-pits are "close to their doors; and while they are surrounded by impurities without, there is too "commonly overcrowding and consequent foulness within?"—Yes.

2907. "One room where four persons died of cholera had an ash-pit close in front of "the window. The fire-place, door, and window were (as it is not uncommon) so arranged "that the corner occupied by the bed was of necessity unventilated?"—Yes.

2908. "It is to be regretted that the water supplied to the inhabitants has been only "fit for flushing off their excretions?"—I should perhaps explain that that was not exactly my own expression. It was drawn up chiefly by my assistant, Mr. Hutton.

2909. You would be anxious to modify that; you do not entertain such opinions?—I do not.

2910. The other parts which we have read you would confirm as true, according to your own observation and opinion?—I do.

2911. This one passage you would not?—No.

2912. (*Mr. Simon.*) You were in bad health I think at the time?—No, I was able to go on with my work. I was not well; but I was never laid up a single day.

2913. (*Chairman.*) This letter of yours proceeds to state: "Overcrowding, impure "water, and the retention in and about their houses of matter which ought to have been "carried away by proper drainage and sewerage, these are causes which have predisposed "them to the attacks of epidemic disease, and made them its more easy victims?"—Certainly.

2914. Do you confirm that opinion?—I do undoubtedly.

2915. The letter continues: "It is in vain to expect that a community so circumstanced "can at any time be in good health, or long free from visitations of sickness?"—Yes.

2916. Are you sufficiently acquainted with the rest of the contents of this report?—I wrote it myself, and I believe it will be found to be correct.

2917. You confirm all these details as to the various lanes and so forth?—I do.

2918. In this letter you quote some words of "the inspector." Is that the superintending inspector of the Board of Health, Mr. Lee?—Yes.

2919. Mr. Lee states that "Typhus fever, cholera, or other epidemic disease, ought "never to have existed in the neighbourhood," (speaking of Blenheim-street, Blandford-street, &c.) "and never would have done so but for the criminal cupidity of builders, and "the absence or non-enforcement of proper regulations." Do you confirm that opinion?—Certainly.

2920. "The back ground, between the east side of Blenheim-street, throughout its "whole length, and the next public thoroughfare parallel to it, is no more than sufficient "for the appurtenances of the front houses, and adequate ventilation. From a desire to "obtain the largest possible rental from the smallest possible surface, the whole of this back "land has been filled up with inferior houses built up into narrow pestilential lanes,and "attempted to be dignified by the names of Temple-street," and so on. Is that a correct "description?—It is.

2921. Mr. Lee proceeds: "After witnessing the awful destruction of human life in this "locality within the last month, it is impossible to repress the strong feeling of indigna-"tion which arises from a conviction that it was nearly all preventible." Do you assent to that?—I do.

2922. Mr. Lee proceeds: "Very many of these newly built tenements ought t be "immediately closed by the local authorities, as unfit for human habitation." Was that your opinion?—Yes.

2923. And is so?—It is.

2924. It goes over some further details; are you familiar with those details?—I am.

2925. And you confirm them?—Yes.

2926. (*Mr. Simon.*) Are you prepared to say that you give your unreserved assent to every part of it, and consider it as your report, with the exception of those passages which relate to water?—Exactly so.

2927. And in respect of those passages, would your opinion be opposed to Mr. Hutton's, or would it be merely that you did not observe the same things as he observed?—I did not observe what he has there stated, although there are many places where I found the water very bad in the very same locality.

2928. Then with regard to those particular passages of the report, your exception would confine itself to this,—that those particular cases were not under your observation, and therefore you are not able to say positively whether or not the cases were as he states?—Exactly.

2929. (*Mr. Bateman.*) Is that so, or do you mean that you think the general expression as to the water stronger than it ought to be?—What is there stated did not come under my observation.

2930. (*Chairman.*) Do you either affirm or deny it?—I do not deny it.

2931. But you do not affirm it?—No.

2932. (*Mr. Simon.*) What is your opinion about the quality of the water at that time?—I thought in many parts it was very impure.

2933. Is your house supplied by the Whittle Dean company?—It is, but we do not drink it; we have a good spring.

2934. (*Chairman.*) In what respects did you think the water impure?—It was so very muddy and thick, and the people complained to me.

2935. Was there nothing about it that was objectionable, except what was palpable to the eye?—I did not observe anything else, nor did I taste it.

2936. (*Mr. Simon.*) Did you hear complaints among your patients, that it had an objectionable taste?—I did not.

2937. (*Chairman.*) Was your opinion of the objectionable nature of the water strong enough to induce you to make any suggestions to your patients with regard to it?—No.

2938. (*Mr. Bateman.*) You say in some parts you found the water in that condition; did the character of the water vary?—I think so; it was clearer in some parts than in others.

2939. On the same day?—No, I would not say on the same day.

2940. (*Chairman.*) I believe the garrison is in your immediate neighbourhood, I might almost say in your district. Have you such a knowledge of the facts and circumstances bearing upon the comparative immunity of the garrison during the late epidemic, as would enable you to form a confident opinion on its causes?—I have not.

2941. Have you any opinion to offer on the gas?—I have not.

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2942. Have you any opinion to offer as to the conduct or misconduct of the officers of the Board of Health, with regard to their duties during the late outbreak?—As far as I was connected with them, I think they showed every wish to do what they possibly could. In particular, I was with Mr Grainger for some length of time when he first came down to the town, and his great desire was to do all he possibly could for the good of the town, in obtaining medical assistants, house-to-house visitors, and so on. I saw him on the Sunday, and was with him an hour and a half or two hours.

2943. Do you think that there were local circumstances, calculated seriously to embarrass the actions of such an officer at that time?—I think there were.

2944. Considering those local circumstances, do you think that the operations of those officers were as efficient and as quick as could reasonably be expected?—Yes.

2945. We wish to have your full opinion upon the subject. Would you sanction any charges whatsoever against them on any ground?—Certainly not, as far as I am concerned.

2946. Allegations have been made to the effect that the officers were incompetent, indifferent—I hardly know how to syllable the charges—inactive, and so on?—I did not observe it from the connexion I had with them.

2947. You would not countenance any such allegations?—No.

2948. Having had intimate official relations with them?—I had, during the whole time.

2949. Is there any other point on which you wish to offer any evidence calculated to throw light on the causes of the recent outbreak?—There is not.

(The following Report from Mr. Sang to the Board of Guardians, and which was referred to by him in Q. 2895, was afterwards put in by the Clerk to the Board.

To the Chairman of the Board of Guardians.

Sir,—In drawing out the following report, I feel a pleasure in alluding to the valuable services of Mr. Hutton whilst acting as my medical assistant, and who has kindly supplied me with much useful information respecting the portion of district No. 5 visited by him and myself. In doing so I shall first transcribe his letter to me on the subject, which is as follows:—

"In retiring from the appointment which I have had the honour to fill as one of your assistants in attending upon the sufferers by the late epidemic, I am anxious to lay before you, and through you, the medical inspector and the guardians, a few observations on the sanitary condition of the localities which I have been daily and nightly called upon to visit; for although my duty was simply to relieve the sick, so far as it was in my power, now that that duty is discharged, it may not be thought intrusive if I point out some of the causes which seem to have inflicted a pestilence on the subjects of my care, and by which a considerable number of them have been destroyed.

"The district intrusted to me, under your superintendence, lies between Westgate Hill, and the Leazes, on the western side of the town, and comprises many of those new streets which have risen up in the suburbs within the last few years. No sewers were laid down when the streets were erected. The houses having been built they were at once let off to tenants.

"The sewerage, drainage, and paving were almost altogether neglected. To this day most of the streets remain unpaved; holes, ruts, and sloughs are common; the earth is saturated with refuse, liquid impurities run along the surface, and, in some cases, into the very houses of the inhabitants. Privies and open ash-pits are close to their doors, and while they are surrounded by impurities without, there is, too commonly, overcrowding and consequent foulness within. One room where four persons died of cholera had an ash-pit close in front of the window, the fire-place, door, and window were (as it is not uncommon) so arranged that the corner occupied by the bed was of necessity unventilated.

"With proper sewers and drains, water-closets might be substituted for privies, thereby getting rid of polluting refuse; and it is to be regretted that the water supplied to the inhabitants has been only fit for flushing off their excretions.

"Overcrowding, impure water, and the retention in and about their houses of matter which ought to have been carried away by proper drainage and sewerage—these are causes which have predisposed them to the attacks of epidemic disease, and made them its more easy victims.

"It is in vain to expect that a community so circumstanced can at any time be in good health, or long free from visitations of sickness."

Oyster-shell-lane.—Each house has four tenants, a tap for water, privy and sink for dirty water, opening into a sewer. The lane is unpaved, large holes exist in all directions, and a gutter, which appears to be running with dirty water continually, exists just in front of the doors of the houses. Cholera was severe in this locality.

Buckingham-street.—Each house has four tenants, a privy, sink, and tap for water. The street is badly paved, a portion not at all. Scavenging seldom or ever performed, consequently the street is generally in a filthy state.

Oaks-place.—The high part is in a bad condition, no pavement exists, but a road with large holes at every step. There is no drainage, the whole of the dirty water running over the surface near the houses. Several tenants to one privy. The lower part is paved, and is in a better state than the upper.

J. Sang., Esq.

21st Jan. 1854.

Copy Report, November, 1853.

Seaham-street.—Each house has two tenants, a privy and sink. The street is unpaved and very dirty. Large holes which allow of the retention of dirt and filth are seen in all directions.

Pitt-street.—Each house has three tenants, a privy, sink, and water tap, The sink empties itself into a sewer, existing at the back side of the houses, which runs down a lane into a drain close to the back door of a public house. There are several underground rooms in a very damp and unhealthy state, altogether unfit for human habitation. The street is badly paved, and until very lately kept in a very dirty state, especially at the top part, where it is yet unpaved.

Wellington-terrace.—Almost all the houses here are inhabited by private families. The street is very badly paved and very dirty.

Wellington-street.—Each house has four tenants, water tap and privy, but no sink. The dirty water is thrown out into a lane on the back side, and has to traverse a considerable distance before it empties itself into any sewer. Some houses are inhabited by a single family. The street is very badly paved, large holes exist almost at every step.

Hill-street.—Each house has four tenants, privy, tap for water, and sink. At the back side of the houses is a lane, badly paved, and kept in a very dirty and unhealthy state.

The tenants on the above property complain of the quality of the water supplied to them. Several persons assured me they had to strain it through a cloth before using it. A dirty green mould was frequently seen on its surface.

Barrack-square.—This portion of the district is generally in a very filthy state, from refuse of all kinds being thrown in front of the houses, where are cesspools every few feet as a receptacle for these outpourings of the houses. There are only two *public* privies for the use of male and female, situated at each corner, and attached to each a receptacle for ashes; consequently, being distant from many of the houses, much of the refuse is thrown in front of their houses. There is a spring of water in the square.

Dixon's-buildings.—This place has long been famed for dirt, and impurities of all kinds. Large cesspools are situated close to the back part of the buildings, making it in winter nearly impassable. Many of the houses are very crowded and very dirty, many of them inhabited by Irish families. There are privies situated close to the windows of many of the houses, and kept in a very dirty state. Matters have somewhat improved since the visitation of the cholera. Generally, much sickness prevails, which ought not to be from its situation.

Diana-street.—A great portion of this street is unpaved. The small surface drains from the houses flow into the street and remain there, or are carried down into Oaks-place and Buckingham-street.

Blenheim-street and Blandford-street are of themselves well laid out, and apparently well adapted to insure the health of their inhabitants, and were we not to look more closely and examine the densely populated departments behind, we might be fully satisfied; with the outward appearance; but on entering the back lanes of Blenheim-street, Blandford-street, Duke-street, Chapel-lane, and Westmoreland-lane, we find them in a very filthy and unhealthy state. Fevers, and other complaints, of frequent occurrence. The soil, for the most part, (for they are mostly unpaved,) lying a foot or more above the doors, consequently the water runs down into the back yards of the various houses, making them damp and very pernicious to health. In several instances I have strongly urged upon parties the necessity of quitting the premises, as their health was suffering in consequence.

The drainage is very imperfect in these lanes; most of them without any.

The privies are generally situated close to the doors or windows connected with the ash-pit, frequently over-full, and much of its contents strewed in these alleys.

In these places above alluded to the disease was of a very fatal character.

Peel-street and the lanes leading to and from were found of the worst description, and I cannot do better than quote the words of the inspector, whose views I entirely coincide with. He states that "Typhus fever, cholera, or other epidemic disease ought never to have existed in the neighbourhood" (speaking of Blenheim-street, Blandford-street, &c.), "and never would have done but for the criminal cupidity of builders, and the absence or non-enforcement of proper regulations. The back ground between the east side of Blenheim-street, throughout its whole length, and the next important thoroughfare parallel to it, is no more than sufficient for the appurtenances of the front houses and adequate ventilation.

"From a desire to obtain the largest possible rental from the smallest possible surface, the whole of this back land has been filled with inferior houses, built up into narrow pestilential lanes, and attempted to be dignified by the names of Temple-street, Peel-street, Westmoreland-place, &c. After witnessing the awful destruction of human life in this locality within the last month, it is impossible to repress the strong feeling of indignation which arises from a conviction that it was nearly all preventable. Very many of these newly built tenements ought to be immediately closed by the local authorities, as unfit for human habitation.

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"They are generally unpaved, undrained, and without even surface gutters. The slops from the houses stagnate, and sink into the soil. In some instances, behind the front rows, there are small sunk courts, with foul privies close to the doors, but in a very large proportion the privies are under the same roof as the houses, and very often with the same external door. These horrible places are on the lowest floor, frequently below the street, with bed-rooms on both sides and above, and the greater part of the deadly emanations rising direct up the well of the stairs, and filling every room. In a house only two stories above the ground there are six 'tenements' or rooms, and six families, each paying sufficient rent for a cottage. In the basement are two families, and the privy, with a large open vault, the receptacle of everything offensive and injurious; on the ground floor two other families, and on the chamber floor two more families.

"This is especially the case in Peel-street, and few of the houses have been without fatal cases of cholera. Behind one side of the street the windows are within about two feet of the backs of other houses, and the builder has not left himself sufficient ground upon which proper privies could possibly stand."

George-street is wide and airy, similar in many respects to Blenheim-street, except that it is partly unpaved and undrained. The back part is very like to the lanes behind Blenheim-street, Blandford-street, and Duke-street, alike unpaved and undrained.

In the upper portion of the district, viz., John-street, Edward-street, William-street, Bell-street, &c., are all unpaved and undrained, simply surface gutters, running down the back part of the premises, emptying themselves into the gutter on the west turnpike road.

Elswick-street is paved and drained; the privies and ash-pits, for the most part, are under the same roof as the houses, and frequently the smell emitted from them is very offensive, and highly detrimental to the health of the inhabitants.

I am, Sir, your obedient servant,

1, Charlotte-square, November 1853. JOHN SANG.

THOMAS FOTHERGILL MCNAY, Esq., sworn.

T. F. McNay, Esq.

24th Jan. 1854.

2950. (*Chairman.*) You are medical officer to the fourth district of the Poor Law Union, comprising All Saints East, are you not?—I am.

2951. (*Mr. Simon.*) Your district, I believe, extends beyond the old borough boundary, and takes in the township of Byker?—The township of Byker, Heaton, and part of Jesmond.

2952. You therefore take in part of Sandgate?—A part of Sandgate east of the Swirle, and of the Wood-entry.

2953. Do you take in North Shore?—Yes, east of the Swirle.

2954. Do you take in Ouseburn?—Yes.

2955. Lime-street?—Yes.

2956. Mitcheson's-buildings?—Yes.

2957. Dublin-terrace?—Yes, and Ballast-hills.

2958. Ballast-hills is in Byker, is it not?—No, it is in All Saints; but it is in the Byker registration district.

2959. In those places that I have mentioned, the east end of Sandgate, for instance, how are the poor people lodged?—They are very much crowded.

2960. Have you heard the evidence that has been given here with respect to the other part of Sandgate?—I have heard a part of it.

2961. Have the people in your end of Sandgate, the east end, any decent privy accommodation?—They have no privy that I know of. There is one public privy at the foot of the Swirle, in my district, I think Mr. Newton alluded to it yesterday; besides that, I know of none.

2962. Do you know the population of that east end of Sandgate?—I do not.

2963. (*Chairman.*) Can you form an estimate?—I can give you the population of it in connnection with some other places. I have the population of it with the south side of the New-road, viz., 1789.

2964. (*Mr. Simon.*) And you do not know of their having any but one public privy for their use?—I am not aware of any, excepting on the New-road. There are some very decent houses there that have privies.

2965. For the mass of the poor population there are none?—None, excepting the public privy at the foot of the Swirle.

2966. Have you heard the general statements which have been made to us about the results of that; the keeping of kits in the rooms; the production of stinks there, and the casting out of the contents of these kits on to the pavement, and so forth?—The same practice exists in my district as has been described to you in the other parts of Sandgate.

2967. Is the water supply good in your part of Sandgate?—There are some stand pipes, I think.

2968. In every house, or in every entry?—No.

2969. Can you mention one or two entries that have not stand pipes?—I am not aware of any stand pipes in any of the entries.

2970. (*Chairman.*) Are most of them without stand pipes?—Yes.

2971. So that the inhabitants have to go to the public pants?—To public pants.

2972. (*Mr. Simon.*) Are the poor a good deal crowded there?—A good deal crowded.

2973. Are they crowded so far that one family is in one room; or are they more crowded than that?—Considerably more. Every Irishman's room is a lodging-house.

2974. (*Mr. Town Clerk.*) He takes in his friends?—He takes in any one that will pay him for a night's lodging.

2975. (*Mr. Simon.*) Has that been under regulation lately?—It is only the registered lodging-houses that are under regulation.

2976. Does there exist in your district a large number of houses that are lodging-houses in the sense which you have just mentioned, that are not registered?—I believe there is only one registered lodging-house in all my district; but I believe that every room inhabited by an Irishman is a lodging-house.

2977. Are there many rooms thus inhabited by Irishmen in your district?—The greater part of those in Sandgate are so.

2978. In the east end of Sandgate?—Yes.

2979. How are the people off for ash-pits, or have they any?—No, I think not.

2980. Are the rooms tolerably clean?—No, they are very dirty.

2981. Are you cognizant of any rules that have been made for their cleansing by the authorities?—No.

2982. When there is a change of tenants, is there any cleansing effected in the interval between the going out of the one set of people, and the coming in of the other?—Not that I know of.

2983. Is the paving in the entries of Sandgate good?—In some it is better than in others. It has been considerably improved in some entries in Sandgate; not at my end of Sandgate, but in Mr. Newton's district.

2984. But not in your district?—Not in mine.

2985. Is the scavenging good there?—No amount of scavenging can keep it clean.

2986. Why?—Because they are continually throwing out the excrement from the windows into the entries.

2987. Do you look upon that as the natural result of what you have mentioned, viz., that there is no privy in the place?—I suppose it will be that.

2988. Do you see scavenging going on in these byeways at the east end of Sandgate?—I believe there is a cart goes round twice a day, in the morning and at night.

2989. Do you see any sweeping or washing out of the lanes and entries?—I have seen them use the hose to wash out some of the lanes, but not very often.

2990. Did you see it during the prevalence of the cholera?—It did take place during the prevalence of the cholera.

2991. Had you seen it take place before that period?—Yes.

2992. During the prevalence of the Irish fever?—During the prevalence of the Irish fever, I can scarcely remember whether I ever saw it or not.

2993. Have you seen it frequently?—No, very seldom.

2994. What is the condition of the property of North Shore? Is that better than what you have just described?—Considerably.

2995. Are the houses more widely apart?—Yes; they have an open frontage.

2996. Have they privy accommodation?—There is some privy accommodation, but not much.

2997. Are the privies, such as they are, drained?—No, I think not.

2998. Do they communicate with the ash-pits?—Yes, the privies generally do.

2999. What is the state of the property about Ouseburn and Lime-street?—It is very bad indeed, more particularly Dublin-terrace and Mitcheson's tenements, in the centre of Lime-street.

3000. (*Mr. Simon to Mr. Town Clerk.*) Is that within the boundary?—(*Mr. Town Clerk.*) Yes.

3001. (*Mr. Simon to Mr. McNay.*) Is that in a foul state?—It is dirty, damp, unventilated, and overcrowded.

3002. Is there any privy accommodation?—No privy.

3003. (*Mr. Town Clerk.*) Are you speaking of Lime-street?—Of Lime-street.

3004. (*Mr. Simon.*) Is there refuse lying about the houses?—Yes, immense accumulations about Dublin-terrace. There is a privy in a yard, just as you enter into Lime-street, Potter-yard they call it, before you come to Dublin-terrace, and an ash-pit connected with it.

3005. Is it in a decent condition?—No, it is very dirty.

3006. For how many people does it serve?—I am not aware of any other in Lime-street.

3007. Do you know the population of Lime-street?—I do not separately.

3007A. (*Mr. Bateman.*) Is that privy under cover?—Yes.

3008. Do you have to get over a mountain of filth to get at it?—You have.

3009. In the dark?—You have. I see there is a district here consisting of Cut-bank, Lime-street, Ouse-street, Tyne-street, Miller's-hill, and St. Ann's-terrace, containing a population of 1,711.

3010. (*Chairman.*) What privy accommodation have the people throughout the whole of that district;—In Cut-bank there are some privies. In Lime-street I know of none but the one I have mentioned to you.

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3011. Are there any others?—In Tyne-street some of the houses, I believe, have privies.

3012. (*Mr. Simon.*) Is the paving good in this part of your district?—In Lime-street there is flagging along the front of the houses, but there is no paving in the street.

3013. And in the entries about there?—The paving is very bad.

3014. At the time of the outbreak of cholera, was there generally about the houses of the poorer people in that district, within the borough, great filth?—There was.

3015. In respect of ventilation, it has been represented to us that in Sandgate the houses are so closely set together that between the rows of houses there are little more than chinks, from three to four feet wide on the average, for the admission of air, and that many rooms never get any direct sunshine; is that the case in your end of Sandgate?—It is. There are many rooms into which, if I go to visit a patient in the middle of the day in the height of summer, I must take a candle before I can see my patient.

3016. Do you find that those patients have as good a chance of recovery as if they were in rooms where you could see them without candle-light?—Certainly not; by no means.

3017. Is there any sensible difference in the property of Sandgate on the north and on the south side of St. Ann's-street?—The lanes on the north side of St. Ann's-street are for the most part what they call *cul de sacs*, blind alleys; those on the south side are open at each end.

3018. (*Chairman.*) Entirely open from the bottom to the top?—Yes.

3019. (*Mr. Simon.*) Have you patients in any of the property there which belongs to the corporation?—I do not know to whom the property belongs.

3020. You spoke of Mitcheson's-buildings; are there not two places of that name in your district?—There are two; there are Mitcheson's-buildings on the New-road.

3021. What is the condition of that property?—Very bad indeed; very dark. You must take a candle in many of those rooms before you can see your patient.

3022. Is it overcrowded?—Overcrowded, inhabited by Irish.

3023. As you enter there, are the floors some steps below the level of the road?—They are.

3024. Thus a soakage of filth and damp occurs there?—It must do.

3025. Does it happen to you, on entering those houses in wet weather, to find that wet has passed into the rooms, that there are puddles in the rooms?—Yes, frequently.

3026. Do you consider those houses fit for human habitation?—No; they were shut up during the greater part of the cholera.

3027. And are now re-opened?—They are now re-opened, and I have had a great deal of fever in them since.

3028. Were they shut up by the authority of the corporation?—I should think so.

3029. (*Chairman.*) Was any material improvement made in them before they were re-opened?—No, they are just in the same state, as far as I can see.

3030. (*Mr. Town Clerk.*) Which houses do you speak of?—Mitcheson's-buildings in the New-road.

3031. (*Mr. Simon.*) Have you had a good deal of illness there of late?—Yes, there has been a good deal of fever there through this month.

3032. Do you still find there the same sanitary evils; do you find the same overcrowding, the same dirt, the same low level of floor, and the same disposition to soakage as you found previously to their closure?—Exactly the same.

3033. No improvement in ventilation?—None.

3034. Do you believe them to be now as unsuitable for human habitation as when they were closed?—I do.

3035. Was it under your signature that they were closed?—No; I think they were closed by Dr. Allen, one of the visitors of the Board of Health.

3036. The other Mitcheson's-buildings is in the neighbourhood of Lime-street, I believe?—It is in the centre of Lime-street.

3037. What is the condition of the property there?—Very similar to that which I have mentioned to you in the New-road, excepting that Dublin-terrace is on a high elevation, whereas, in the New-road locality, it is on a very low level.

3038. (*Mr. Bateman.*) With all the refuse baking in the hot sun?—Yes, it is built in the middle of a swamp.

3039. (*Mr. Simon.*) Although on a high level, do you find it dry?—No; there is a bank behind the houses which drains down into the walls, and the houses themselves are built in a swamp in front of it.

3040. There are two levels of houses there, are there not, a lower and a higher level?—There are.

3041. The lower called Mitcheson's?—Yes.

3042. And the upper called Dublin-terrace?—Yes; that is Mitcheson's-buildings too, though it also goes by the name of Dublin-terrace.

3043. Do you believe those to be unfit for human habitation?—I do; I always have done.

3044. Are there many houses in Lime-street which you believe to be unfit for habitation?—There are some others besides those in Lime-street.

3045. Do you believe the east end of Sandgate to be unfit for human habitation?—I believe that, taking Sandgate as a whole, the whole of it is unfit for human habitation. I believe the whole of it would be better removed.

3046. Leaving out for the moment those better houses that form the outside or crust of the mass, and taking the inside houses of Sandgate, do you consider them to be fit for human habitation?—I believe that the entries in my district are unfit for human habitation. White Boar-entry, on the north side of St. Ann's-street, is a very bad entry; it was there that cholera first appeared in my district last year. It was full of fever, during the fever epidemic, in every room.

3047. Do you find generally, in respect of these properties, that fever has prevailed in them?—Yes.

3048. Do you find generally that the mortality is high?—The mortality is high there.

3049. Do children die at a great pace there?—Both children and grown up people. I have seen the rooms in that district, during the fever epidemic, full of both children and grown up people dying.

3050. What was the largest mortality which you had from cholera in any spot of your district?—There were fourteen deaths in Lime-street.

3051. (*Chairman.*) You do not happen to know the population of Lime-street by itself?—No; I gave you the population of Lime-street with one or two more places.

3052. Can you give us the mortality in all those places together?—In all those places that I mentioned together there was a mortality of thirty; or 1 in every 57 of the population.

3053. 30 in 1,711?—Yes.

3054. (*Mr. Simon.*) Can you mention in your district, either within or without the borough boundary, any decent habitations for the labouring classes?—There is a good deal of tenemented property in my district, inhabited by working men, which is very decent property.

3055. Kept in good order?—Yes.

3056. Where is that?—In the streets immediately adjoining my own residence, in Gibson-street, and Howard-street, and Richmond-street.

3057. Did they suffer from cholera there?—Yes, there was a good deal of cholera there.

3058. Had they privies or water-closets?—They had privies.

3059. At each house?—At each house.

3060. In the back yard or in the cellar?—In the back yard.

3061. With an ash-pit communicating with it?—The ash-pit communicates with all I have seen. I have not been in every house, but in a number of them.

3062. (*Chairman.*) Are the yards between one row of houses and the next spacious?—No, small generally.

3063. The two rows are near together?—Yes.

3064. And the effluvia from the privies would of course lie in a pool there?—It lies in a pit between them.

3065. (*Mr. Simon.*) So that in the space between the back of Richmond-street and the back of Howard-street there stands a row of privies and ash-pits?—Yes.

3066. None of those privies being drained?—There are drains, I believe, in the whole of that district.

3067. But do the privies communicate with the drains?—I am not aware whether they do or not.

3068. Is there any supply of water to the privies?—No.

3069. (*Chairman.*) This space, occupied by the privies and ash-pits, as I see on the map, is entirely built round, both at the sides and ends?—Entirely.

3070. (*Mr. Simon.*) A decent and cleanly population inhabit those houses?—They are generally inhabited by decent working people.

3071. About the part which lies outside the borough, the district of Byker, we have some information, derived from one of the visitors who were here at the time of the cholera, a gentleman of the name of Langston; do you recollect it?—I do not know him.

3072. I will read to you a few paragraphs about the place; it will perhaps shorten your examination, if you will tell me whether they are generally correct. He speaks of St. Peter's and Dent's Hole; they are both in that district, are they not?—They are.

3073. He says, "The structural arrangement is very bad, for in almost every house the "rooms are small and low, without means for ventilation, and have contracted windows "much below the ceiling. Many are very dark, and the doorway, where (as there often "is) there is only one, forming a cul de sac within, is generally on the same side with the "window?"—Yes.

3074. "The space allotted to dwelling-houses is very small indeed; houses being jammed "in against other houses, and mingled up in close and confused contact or near proximity "with privies, cesspools, cinder and refuse middens, heaps of filth of every description, "and other buildings"?—Yes.

3075. "Yards scarcely exist; for the few square feet of bestrewed surface at the back "of some dwellings scarcely deserve the name?"—Yes, that is correct.

3076. "The houses and premises are almost choked up with stinking materials; and "there had been no change up to my departure?"—That is correct.

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3077. Would it be the case that, during his stay here, there would have been no change in those respects?—There is no change that I am aware of.

3078. The district may be fairly said to have no drainage or sewerage whatever?—I do not think it has any.

3079. In respect of privies he says, "In almost the whole district of Dent's Hole not a "privy exists, and persons here throw out the contents of utensils (used within the only "room they have for household purposes and sleeping in,) in front of their doors, there "not being even ash-pits for its reception?"—That is true.

3080. "Thus at a place called West House, at the extreme east of Dent's Hole and "bordering upon St. Anthony's and the notorious colliery district of Walker, there are "in all eighty-four persons, occupying only twenty-four rooms and sleeping in eighteen "beds. Those living in the front and two sides of the square throw out everything "before their doors, drains even being absent, except one at the back which is not used "by those on the front and sides, and which is in itself a nuisance, because close to the "doors of some houses, with an open grate evolving a loathsome stench, besides passing "beneath the floor of occupied rooms, the crevices between the boards of which admit "freely the effluvium, and at times even the sewer fluid itself, and always keeping it "wet." Is that true?—I cannot speak to those particulars; I do not know them. I know West House, but I have not been there for a very long time.

3081. Supposing that description to be authenticated, should you conceive those houses to be fit for human habitation?—No, I should say not.

3082. Do you know Pity Me?—I do.

3083. A place occupied by eleven families, consisting of forty-eight persons, in twelve rooms, and sleeping in twenty-one beds, with no privies, drains, or middens?—I have not counted them; I cannot say.

3084. "All here again is thrown out before the houses?"—Yes, that is correct; I can answer for that.

3085. Without answering for the population, you can answer for the fact, that all the filth is thrown out before the houses?—I can.

3086. "At houses on Ropery Bank, Dent's Hole, twelve families live in twelve rooms, "in all fifty persons, lying in twenty-six beds. I might go through the whole "district of Dent's Hole, reiterating the same at every nest of habitations." Do you believe that the general statements here made about the crowding, the absence of privy accommodation, and the accumulations of refuse about the houses, were true with respect to the greater part of Dent's Hole?—I believe them to be so.

3087. He says, "In William-street, St. Peter's, a small but thickly populated street, "there are six privies private to twelve families, numbering seventy-six persons, and "these are mostly within a few feet of, or close to, the walls and doors of dwellings, with "open seats which emit a powerful smell of sulphuretted hydrogen and other gases. The "remaining thirty-six families, the ascertained numbers of thirty-two of them being in "the aggregate 126 persons, and four other families whose numbers were not ascertained, "perhaps in all 150 persons, have no provision of privies of any kind?"—I do not know the number of privies in William-street; but I am quite certain that there are some, for I saw them on Saturday last on going through William-street.

3088. Do they emit a powerful smell of sulphuretted hydrogen?—I did not perceive any smell on Saturday last.

3089. Did you look closely at them?—I did.

3090. He speaks of the paving of that district, "Scattered patches of rude paving are "found here and there, but with the exception of a certain street and small portions of "one or two others, where there are some general rough pavements, there is no paving "whatever, either in St. Peter's or Dent's Hole?"—St. Peter's is very badly paved indeed.

3091. And Dent's Hole?—Dent's Hole is not paved at all, I think.

3092. And he adds, "I am told it is quite impassable for wheel carriages in some places in winter?"—It is scarcely passable for any one, even for foot-passengers.

3093. (*Mr. Town Clerk*). At any time?—In winter, in bad weather.

3094. (*Mr. Simon.*) He describes then that on the north side of St. Peter's, where the five streets of St. Peter's run up to, there is some immense accumulation of filth; do you know of that?—They are laying down earth on the north side of St. Peter's, for the purpose of filling up the hollow there, but I am not aware that there is much filth there; I have not seen it.

3095. I will read you in detail what he says. "At the elevated or north end of the "five principal streets is a field or plot, where the debris and refuse of glasshouses, "potteries, and other manufactories are thrown, carried there by means of carts?"—Yes, that is true.

3096. "It is principally the residue of combustion, cinders and vitrified matters, often put there in a state of ignition?"—Yes.

3097. "And for a time continues to burn beneath the surface, leaving a crust above, deceptive of solidity?"—Yes.

3098. "And it is current among the people of the district (with what amount of truth "I cannot certify,) that some children at a recent period have been burnt to death by the "giving way of this crust, and their falling into the heated mass beneath while playing "upon it?"—I never heard of that; I think I should have done if it had been the case. I am in St. Peter's nearly every day.

3099. Is it within your own knowledge that stuff still burning is thrown out there?—I have seen it occasionally.

3100. From glasshouses?—From glasshouses; it very soon goes out.

3101. "This is the spot," he says, "spoken of before as the depot for the ordure and "filth from the various streets, in the absence of privies and middens. Here, exposed to "an extensive surface, flowing down the streets and stagnating in their hollows, the filth "steams off its effluvium congenial to epidemic diseases?"—It may be the case, but I have not seen it; and I have heard no complaint of it from any inhabitant of St. Peter's. I have not seen the filth deposited there; I know they are filling up the hollow there by depositing the refuse from manufactories.

3102. (*Mr. Town Clerk.*) I just want to ask a question, in order to acquit the surveyor of highways of any responsibility for the township of Byker, where these streets are situated, which is, whether you do not know that the proprietors have refused to allow those streets to be treated as public streets, and have occasionally passed a bar across them, preventing a thoroughfare in the street or road approaching St. Peter's, so as to preserve it as a private place?—Yes, there is a bar beside Plummer's-row.

3103. Which is occasionally shut, to preserve the private right, and to exclude the jurisdiction of the surveyor of highways; so that he is not to be blamed in this respect?—I know it to be the case that there is a bar there.

3104. (*Chairman.*) Excepting the allusion here made to the nuisances arising from the refuse deposited, and without vouching for the details of numbers of rooms, persons, and so on, do the passages which you have heard read out of this paper, convey to you the idea of exaggerated statements or otherwise?—I believe them to be substantially correct.

3105. (*Mr. Simon.*) You believe that throughout Byker there is the general distribution of filth which is described there?—I do.

3106. Have you observed any improvement there within the last six months?—No, I have not.

3107. Do you know of any bye-laws that have been made for the regulation of lodging-houses before September in last year?—No, I do not.

3108. Do you know of any regulations that have been laid down for cleansing filthy and unwholesome dwellings?—I suppose there are some regulations for the purpose.

3109. Do you know any such?—No, I do not.

3110. (*Chairman.*) Have you seen any signs of any such being put in force?—I have not seen any such signs.

3111. (*Mr. Simon.*) Have you seen places which you would call filthy and unwholesome places, remain unimproved and in the same condition year after year?—I have.

3112. Are cattle and pigs kept much in your district?—In some places they are.

3113. As a nuisance in any part?—Yes.

3114. Where?—I remember a woman dying of cholera in 1849 at Byker Bar, and there was an ass in the room at the time; and in Micheson's tenements, in Lime-street, there was a stable in a house.

3115. In regard of pigs how is it?—Pigs are kept in different parts of the district, not so many as there were; I believe that that nuisance is a good deal abated.

3116. (*Chairman.*) None are kept in dwelling-houses?—Not in dwelling-houses.

3117. You know of some regulations having been enforced with reference to swine keeping?—Yes.

3118. (*Mr. Simon.*) Should you say, from the condition of your district generally, that it was desirable that rules should be enforced there for the cleansing of filthy and unwholesome dwellings?—Certainly.

3119. From 1846 to the present time should you say that that has been necessary?—Certainly I should.

3120. Do you believe that the mortality in your district from epidemic diseases, from fever, and from cholera particularly, has depended in any degree on defective sanitary arrangements?—I believe it has partly depended on defective sanitary arrangements.

3121. Have you seen any considerable mortality from fever, or from cholera in places that are free from any sanitary defect?—No, I have not.

3122. Had you any complaints of the quality of the water during the prevalence of the cholera?—Yes, very great.

3123. Can you speak on that subject from your own observation?—I saw the water.

3124. Was it thick or otherwise?—It was very thick and dirty.

3125. Had it any disagreeable taste or disagreeable smell?—I did not drink it.

3126. Did you smell it?—I did not. I cannot speak to the smell.

3127. (*Chairman.*) Did you think it requisite, as a medical man, to give any instructions to your patients with reference to its quality?—I told every one that I came in contact with not to drink it.

3128. You thought that your duty as a medical man?—I thought it my duty.

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3129. (*Mr. Simon.*) Are you aware of any ill effects produced by it?—I believe that it produced diarrhœa.

3130. Have you any special instances to which you would refer in evidence of that?—No I have not.

3131. (*Mr. Bateman.*) Is that your general impression?—That is my general impression. Cholera began to subside after the company ceased to draw the water from the Tyne.

3132. (*Chairman.*) That is your impression?—It did so.

3133. Do you regard that merely as a coincidence, or as a matter of cause and effect?—Whether it was a matter of cause and effect or not we cannot tell; it was a coincidence unquestionably.

3134. You do not wish to give any opinion stronger than that?—The mortality continued to increase, I believe, for two or three days after they ceased to draw water from the Tyne; but there was still Tyne water supplied from the pipes. The secretary of the water company stated in my hearing, a day or two after they had ceased to draw the water, that there was still a quantity of water in the pipes which must be used by the people.

3135. (*To Mr. Main.*) I suppose that would necessarily be the case. Your reservoirs would be more or less full of Tyne water on the 15th?—Very likely on the first day.

3136. Do you think that it would not extend beyond the first day?—I do not think it would.

3137. (*To Mr. McNay.*) Had you occasion, owing to your official position, to come in contact with the superintending inspectors or other officers of the Board of Health?—I had.

3138. Will you be good enough to favour us with your opinion upon that subject?—Upon what subject?

3139. With reference to their conduct here, which has been impugned in different ways for one thing or another?—I perfectly agree with what Dr. Gavin stated to-day, that it would have been much better if the arrangements, which he was unable to complete before the 23d, had been completed at the very commencement of the epidemic. I think, if those arrangements had been completed then, there might have been much life saved.

3140. No doubt about it. But do you impute either to Dr. Gavin or to Mr. Grainger any remissness in not completing those arrangements at an earlier period?—I believe that they brought them into operation as soon as they could.

3141. You would not countenance any charge of remissness, or tardiness, or slackness, or indifference?—The arrangements were very tardily completed, but what was the cause of it I cannot tell. Dr. Gavin states himself to-day that it would have been very desirable to have had them completed earlier. I think so too. Why they were not completed earlier I cannot tell. I have no opinion upon the matter.

3142. Have you any opinion to offer as to the expediency or non-expediency, or as to the difficulties of calling together the medical profession?—I think it would have been much better if they had been called together at the beginning of the epidemic.

3143. Is there any other point in connection with that subject upon which you have anything to offer?—No.

3144. Do you think it possible that a state of circumstances existed here which may have impeded the officers of the Board of Health in carrying out any such intention of summoning together the medical profession?—I do not think that there would have been any impediment offered to the officers of the Board of Health by the medical men of Newcastle.

3145. Did you hear what Dr. Gavin said as to the result of a meeting, where, on one occasion, he had attempted to obtain the co-operation of the medical men?—I did. I was not at the meeting.

3146. Do you think that the same circumstances which then prevented that meeting having any beneficial results might have been in operation at any previous time, supposing any other such meeting had been attempted previously?—I do not know what the circumstances were that interrupted the meeting.

3147. You are not intimately cognizant of the matter?—No. I believe that every assistance would have been given by the medical men of Newcastle to the officers of the Board of Health if they had been called together. That is my impression of my medical brethren.

3148. Is there any other point on which you wish to make any statement to the Commission?—None.

3149. (*The clerk to the board of guardians.*) You have spoken about accumulations of filth about Lime-street and other parts of your district. Did you make any representation to the board of guardians about them?—I have frequently reported them, when the inspector of nuisances called upon me to inspect them.

3150. From the habits of the people, are you of opinion that, if you were to remove them to-day, the inspector of nuisances would, perhaps, in a week or ten days, have to report a similar accumulation again?—It is most likely he would.

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3151. (*Chairman.*) Supposing the houses in which these people reside to have been furnished with proper privy and ash-pit accommodation, and those privies and ash-pits to have been properly cleansed and emptied from time to time, do you think that you would then have found excrement and filth habitually flung about the surface?—Certainly not.

3152. Then are you of opinion that this accumulation and re-accumulation of nuisances is dependent on any perverse love of filth in the inhabitants, or only on the want of accommodation in the houses which they are compelled to occupy?—Only on the want of accommodation.

3153. (*Chairman to the clerk of the board of guardians.*) You have been present, I believe, during the greater part of the time, while we have been examining in succession the five medical officers of the five districts of the Poor Law Union of Newcastle. Are you of opinion that any of the statements made by those gentlemen are exaggerated or incorrect in any degree; and would you wish us to go further into any point?—I have no reason to think so, sir; and I think that they are substantially quite correct.

SEPTIMUS WILLIAM RAYNE, ESQ., sworn.

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3154. (*Chairman.*) You are surgeon to the police force of this town?—I am.

3155. Have you been so for some years?—Nine years.

3156. How many years have you practised in the town?—Nearly twelve.

3157. In that time have you had occasion to make yourself acquainted with the state of the town generally?—I have. I think I can give a general description of most of the districts.

3158. Will you be good enough to state to us, what, in your opinion, was the condition of the district of St. John on the 31st of August 1853, shortly before the late outbreak; for instance, about Castle Garth?—I have been frequently in Castle Garth, and have known it since the year 1831 intimately. I served my time close to it.

3159. (*Mr. Simon to Mr. Town Clerk.*) Is that within the borough?—Yes.

3160. (*To Mr. Rayne.*) What was the condition of the house property there?—Very bad indeed, and is at the present time.

3161. The points upon which we chiefly wish your opinion are these,—as to the privy accommodation of the inhabitants, as to their drainage, as to their water supply, as to the ventilation of the houses, as to the crowding of inmates in the rooms, and as to the scavenage of the district. Will you state anything that lies within your knowledge on those points?—I consider that the greatest number of the dwellings in the neighbourhood of Castle Garth are in a bad state, unfit for human beings; overcrowded; that they are in want of ventilation; that there is a great want of privies; that the excrement is thrown out from the kits, and that the scavenging is bad.

3162. (*Chairman.*) You say you have known that district for twelve years?—I have known that district since 1831. I served my time in it; but for four years I knew it intimately, and have known it again in practice for the last twelve years.

3163. In your opinion, what degree of improvement has taken place in the condition of Castle Garth between the time when you first became acquainted with it, and the month previous to the outbreak of the recent visitation?—I think that the making of the High Level railway bridge took away a great many dwellings which were very improper, but left the others to be overcrowded. There is a particular place, called Bankside, still in a very bad state. The arches of the bridge are the receptacles for what ought to go into privies.

3164. (*Mr. Simon.*) What is the condition of Clogger's-entry, Side?—I consider that it is in a very bad state.

3165. (*Chairman.*) With reference to the houses not swept away by the railway operations in Castle Garth, what improvement, in your opinion, has taken place between 1831 and August 1853?—I think there is more ventilation now, since the opening of that bridge, than there was; the area is not so crowded.

3166. (*Mr. Simon.*) Independently of the change made in the locality by the construction of that bridge, have any other improvements been introduced?—Not that I am aware of. I have not seen any improvements in the dwellings; they are worse, if anything, more dilapidated.

3167. Are you aware of any improvements which have taken place in Clogger's-entry, Side?—I think Clogger's-entry is better paved than it was in 1832, 1833, and 1834; better flagged.

3168. (*Chairman.*) When you say that in Castle Garth a certain improvement has taken place in ventilation, do you mean to exclude the suggestion that improvement has taken place in any other detail, sewers and drains, for instance?—There has not been any that I am aware of. I have been there in the middle of the night, as police surgeon, and also from other public appointments that I have, and I have felt it very disagreeable.

3169. You are not aware that the houses in Castle Garth have in those twenty years been materially improved, except in respect of the additional ventilation afforded by the operations of the railway company?—That is my opinion.

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3170. With reference to the houses in Clogger's-entry, are you aware of any improvements in any other point except that of paving?—I am not; I do not pass there very often; perhaps I am once in three months in Clogger's-entry. I attend a large manufactory, the people of which live in different parts of the town. Sometimes I am there twice or three times a week, and then for three or four weeks together I am not there at all.

3171. With reference to Dawson's-court, what is its condition?—It is in a most filthy state, and always is and has been.

3172. No improvement there?—I conceive none.

3173. (*Mr. Simon.*) Then there is Orchard-street. Is Orchard-street a street of some considerable width?—It is.

3174. And of some pretensions, is it not?—No, not of any great pretensions. It is inhabited by a good many people belonging to the manufactories.

3175. Tenemented property?—Yes; one and two room tenements.

3176. Have they privies?—I believe there is a deficiency of privies; but I will not swear to that.

3177. South-street?—South-street is in a bad condition, too. In all those streets I have attended a great deal of fever.

3178. Forth-street?—Forth-street is better; there is more ventilation; it is a more open street, and a better class of houses.

3179. Do you find it defective in its arrangements?—I think the condition of Forth-street is pretty tolerable; you do not see any excrement in the street, but you have slops, and those things.

3180. Is it inhabited by a higher class?—I think a better class of working people.

3181. Have they privies?—I will not swear to that. I have not made inquiries.

3182. The Close?—Many parts of the Close are very bad indeed.

3183. (*Chairman.*) In all those respects which we have mentioned?—Yes; want of privies and of sewers, and there is a great deal of excrement in the chinks.

3184. Overcrowding?—In parts of the Close there is a great deal of overcrowding. Some of the houses built on the Bankside are very much overcrowded, and in a very poor condition.

3185. (*Mr. Simon.*) In the several places, excepting Forth-street, which we have mentioned, Castle Garth, Clogger's-entry, Dawson's-court, Orchard-street, South-street, the Close, and Bankside, are there a great number of houses to which you would apply the terms filthy and unwholesome?—There are; and they are very disagreeable to go into at night.

3186. Should you say that the majority of the houses in those districts deserved those epithets of filthy and unwholesome?—I should say so.

3187. As regards the improvements which may have taken place in those districts in the last 20 years, or in the last seven years, say from June 1846 to August 1853?—In some of those streets the scavenging is better than it used to be. At one time I remember there was no scavenging at all in those streets.

3188. The dwellings?—The dwellings, I think, are much about the same.

3189. Have you seen any evidence in your visits to those districts, since 1846 and previously to the 31st of August 1853, to the effect that filthy and unwholesome dwellings were subject to the operation of any rules or bye-laws made by the corporation for the cleansing of them?—No; I never saw that there were any rules for cleansing; they have always remained in the same condition.

3190. Let us proceed now to another district—to Pandon, Silver-street, Blyth's Nook, Pandon Dean, Wall Knoll, Craig's-alley, Sandgate, Garth Heads, and Shield Field. Those are mentioned to us as places exhibiting very defective sanitary conditions. Is that your opinion of them?—It is. I think it could hardly be worse.

3191. (*Chairman.*) With reference to the privy accommodation there; what is it?—It is very bad; there is hardly any. Shield Field, however, is a different sort of thing; there is a new stack of buildings altogether there, that has only been built within the last few years, and a worse thing there cannot be.

3192. With regard to Pandon, are the few privies that may be there within or without the houses?—I never saw one within a house throughout all Pandon.

3193. (*Mr. Bateman.*) Is there a public privy?—Yes, at the foot of Pandon. That is the only public privy I know there.

3194. (*Mr. Simon.*) Is there in these districts a pretty general habit of throwing excrements upon the pavement?—Yes; and if you walk there at night you are apt to get a shower of it.

3195. (*Chairman.*) With reference to ash-pit accommodation in those districts, how is it?—Bad.

3196. It would seem from the local Act of 1846, that privies, ash-pits, and receptacles for manure and refuse within the borough, were made emptiable and cleansable by the town council, or on their orders. Would your experience of the state of the privies and the ash-pits in those districts for the seven years between 1846 and 1853 induce you to think that that power had been adequately enforced?—No, I cannot say that it would.

3197. Do you find the houses in those districts, as a general thing, supplied with water in what you would consider an adequate way?—There are taps.

3198. Do you find enough of them?—I really have not counted the taps.

3199. In what state have you found the walls of those houses?—Very damp.

3200. (*Mr. Simon.*) Have you been able to perceive any considerable improvements in this district in the seven years between 1846 and 1853?—No. I think some of the places are worse. I think Craig's-alley is in a worse state than ever it was. It is in a worse state than it was in 1831 and 1832; there are more Irish in it; it is more overcrowded than before. In 1831-2-3 and 4 the people did not live in the arches under Craig's-alley, but they do now; for I have attended people in a cellar there, without a fireplace.

3201. At what time?—Twelve or eighteen months ago.

3202. Have you within the last seven years seen any evidence there of the carrying out of rules for cleansing filthy and unwholesome dwellings?—Not until the epidemic came.

3203. Before the 1st of September 1853?—No, not before the 1st of September—at least not since the Irish fever. In 1848 and 1849 they were whitewashed. In any epidemic that is the case. During the Irish fever there was a little energy shown, but after the epidemic had gone there was nothing more done.

3204. Do you wish us to accept your previous evidence, with regard to the first district, subject to that explanation?—Yes; whenever there is an epidemic, energy is shown by the authorities.

3205. (*Chairman.*) But how is it in the intervals between the epidemics?—I cannot say much for it then.

3206. The powers do not seem to you to have been adequately enforced?—No.

3207. (*Mr. Simon.*) With regard to Gallowgate, Newgate-street, Prudhoe street, Park-place, and its entries, Percy-street and Mackford's-entry; what, in your opinion, was the state of that district?—Gallowgate is in a very bad state; the people are allowed to keep an immense quantity of cows and pigs; there is no proper sewerage. The filth runs into the alleys, and I have attended an immense quantity of fever in those alleys. I consider that the attention of the Commissioners should be particularly called to the state of Gallowgate, and the state of the cows and pigs kept there. The pigs are kept there to the present time.

3208. (*Chairman.*) At any time are pigs kept within the houses?—Not within the houses, but within the small yard round which several families live.

3209. Were those pigsties in what you would call a proper condition—cleanly, and so on?—No, there are very often horrid smells from them, and from the droppings of the cows.

3210. Should you suppose that adequate bye-laws for regulating the manner of keeping swine, and so on, had been duly enforced within the last seven years?—No. Even after the cholera broke out, after the 1st of September, I detected cows and pigs in Gallowgate, and also in Prudhoe-street.

3211. With regard to the state of the walls, have you ever seen them damp?—In the houses built on the bank sides, where a leakage takes place, they are damp from that source.

3212. Have you ever known dwellings, of whose walls it could be correctly said that they were damp with the infiltration of liquid filth from privies and ash-pits?—I have.

3213. Once in your life or frequently?—Frequently.

3214. Have you also found houses habitually in want of whitewashing, cleansing, and purifying?—I have frequently.

3215. (*Mr. Simon.*) You have spoken of Gallowgate, and of the pigs and cows of that district. As regards Newgate-street, Prudhoe-street, Percy-street, Park-place, and Mackford's-entry, have you any remark to make?—They are crowded. There is a court in Prudhoe-street, within Park-place, consisting of tenemented houses altogether, and in those tenemented houses there are seventy-two individuals, and they have one privy, which eight months in the year is of no good whatever.

3216. (*Chairman.*) It was enacted in the local Act of 1846 that, when it should appear to the council likely to tend to prevent or check infectious or contagious disease, it should be lawful for them, from time to time, to order occupiers of dwelling-houses to whitewash, cleanse, and purify them, or to do it at their expense. Now should you suppose that that power of the local Act had ever been enforced?—It has, whenever there has been an epidemic in the town, when the authorities have got alarmed.

3217. (*Mr. Simon.*) You can recollect the enforcement of regulations of this kind at the time of the epidemic of Irish fever?—I can.

3218. And at the time of the prevalence of cholera this last year?—I do.

3219. Can you recollect other occasions on which those rules have been enforced?—Not without there being an epidemic. I think once, when there was the scarlatina, it was done; I will not swear to it.

3220. There is another—the fourth—of the medical districts, which takes in the following places: North Shore, the east end of Sandgate, Ouse Burn, or Lime-street, Mitcheson's-buildings, Dublin-terrace, a part of St. Lawrence, and part of St. Peter's. Now do those places present the same sanitary evils as you have adverted to in the three other districts?—They do, particularly about Ouse Burn and Lime-street; Dublin-terrace is a frightful place. Dublin-terrace is built upon the bank side, facing the Ouse

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Burn. That is what I call a hot-bed of disease It lies just like a hot frame in which you produce vegetables; it lies upon the bank side, against the south sun; the people throw manure, ashes, and excrements upon the bank, and there it basks, and bakes, and putrifies. Fever is constantly there.

3221. Are those houses let in separate tenements?—They are.

3222. Should you think that these houses would fall within the legitimate sphere of the clause of the local Act, that empowered the authorities to make rules for cleansing filthy and unwholesome dwellings?—I think those houses should be pulled down.

3223. But, during the time of their standing up, should you think them proper subjects for the exercise of the powers of such an enactment?—I do not think you could much improve Dublin-terrace, without taking it away altogether.

3224. In the list of places that I have mentioned, would the majority owe their sanitary defects to the fact of their having been constructed centuries ago, or would their evils be of later date? Take for instance, Newgate-street, Prudhoe-street, Percy-street, and Mackford's-entry?—Mackford's-entry you could not take as having been built centuries ago, but you might take Newgate-street and Percy-street.

3225. Are you aware, as regards recent constructions within the boundary of the borough, whether due attention has been given to the sanitary necessities of their future inhabitants?—I think there are not many recent erections within the old borough; the recent erections are Dixon's-buildings and those places, and they have been run up in such a way that the bricks are not laid flat, but edgeways, to make them go the further.

3226. (*Mr. Bateman.*) Do you mean in exterior walls, or in partition walls?—Exterior walls. The partition walls are merely lath and plaster, and many of them very bad indeed.

3227. (*Mr. Simon.*) What is your opinion of the scavenage of the streets, and courts and alleys within the borough?—I cannot say it is good. I think it might be a great deal better; at times it is very bad, and at other times it is better. That is my candid opinion.

3228. Would you draw a distinction between the scavenage of streets and the scavenage of courts and alleys?—There are a great many private courts and alleys that the corporation do not think come within their jurisdiction, such as Mackford's-entry and Dawson's-court.

3229. (*Mr. Town Clerk.*) That they have no right to go into?—Yes; the corporation do not go into them.

3230. (*Mr. Simon.*) They would be looked upon in the light of private houses?—Yes.

3231. And may be spoken of as filthy houses?—Shocking.

3232. (*Mr. Town Clerk.*) And as long as they are inhabited by Irish, they will be, I suppose?—I should think that as long as such dwellings are allowed to exist, to invite the low Irish to dwell in them, they will be.

3233. (*Mr. Simon.*) Is it within your experience, as a practitioner in this town, that illness is associated in any considerable degree with the defective sanitary conditions to which you have adverted?—It is: with want of drainage considerably. There is a new stack of buildings called East Parade. I attend several families in it; and a worse constructed range of houses with regard to drainage there cannot be.

3234. Is it within the municipality?—No; outside. I had a very bad case of cholera in one of those houses. You cannot go into them without smelling the drains and water-closets. The kitchens are damp, and the drainage incomplete; there are drains and water-closets, but insufficiently fitted. I was there this day week, and put on my hat for fear of the ceiling coming upon my head.

3235. The greater part of Westgate lies outside the old municipal boundary; but with respect to the other four districts which have been spoken of, St. Nicholas and St. John, All Saints West, All Saints East, and St. Andrew, can you charge your recollection, in each of them separately, with cases in which you could associate the presence of fever, or of some kindred disease, with defective sanitary conditions?—Yes; easily.

3236. Abundantly?—Yes; at times abundantly.

3237. (*Chairman.*) With reference to the paving; have you found those places adequately paved?—I think there is a great improvement within the last few years in all those courts in paving, and generally in the town, except those parts which are not within the boundary.

3238. Have you had occasion to notice with reference to some places, such as Sandgate, the nature of the paving; I mean that it consists of pebbles, boulders, or round stones?—Yes.

3239. Have you noticed that the interstices there are habitually laden with filth?—They are.

3240. Do you suppose that to be owing to the nature of the paving?—Yes.

3241. (*Mr. Simon.*) Do you suppose that much soakage of filth into the soil takes place?—Yes; and I consider that, where heat comes, there is a great evaporation of it also into the atmosphere.

3242. (*Chairman.*) I find that on the 9th of May, 1851, Inspector Jenkins reported to the board of guardians several lanes in Sandgate as filthy, adding that "the corporation sweepers cannot remove it in consequence of the lanes being so much out of "repair." Now, do you think that that was an exceptional case, or that more instances

of the same kind might have been found?—I think there has been a great improvement in the lanes in Sandgate with regard to the pavement of the alleys. Sandgate itself is paved with small stones, not with large blocks of granite.

3243. Do you think that many instances of that kind have happened, in which the falling of the pavement into disrepair has interfered with the effective scavenging of the place?—Yes; there is no doubt of it.

3244. That that is not the only instance of the kind which might have been adduced?—No.

3245. Considering the general state of the tenements in the poorer districts, would it have been advisable, in your opinion, for the local authorities to have availed themselves of any powers which they might have by public statutes for building and maintaining proper lodging-houses for the poorer classes?—It would, and I think it would have been a great improvement. It would have lessened the poor-rates; we should not have had so many of the Irish inhabiting these places. They would not be able to afford to pay for those dwellings, and they would move on.

3246. Have you any knowledge of the establishment of baths and washhouses here?—I have seen them and inspected them, and consider that they are a very great improvement in the town for the poorer classes.

3247. Have you nothing further to observe with respect to them?—No; the baths on the New-road are very admirably conducted, and very clean.

3248. Have you, within the last few years, noticed any nuisances, or what you consider nuisances, about the town?—Yes; general nuisances.

3249. In what respect?—I think there cannot be a greater nuisance than the open conduit running down Lovaine-place, underneath St. Thomas's church. I drew the attention of the magistrates to it in 1849. I had a case of cholera in Lovaine-place, and a very bad one. I examined the conduit myself; that was in September 1849, when the gases were oozing out of it from the decomposition and the heat.

3250. (*Mr. Town Clerk.*) It is through private property?—It is.

3251. It is closed?—There is one part not closed.

3252. That is lower down a good deal?—That is a little below Ellison-place.

3253. (*Mr. Simon.*) Did cholera prevail there this last year?—I am not aware of any cholera in that neighbourhood. I had not any public appointment which drew my attention to that neighbourhood, only private patients. There was a good deal of diarrhœa.

3254. What is the course of that open channel?—It runs down to what is called the Dean; it runs into Pandon Dean, and so on into Pandon.

3255. Passing into Ellison-place?—Yes, it passes down a ravine; it is in a deep ravine; one end of Ellison-place is looking over it. I believe it is nearly covered in. It carries the sewerage of the barracks, Spital Tongues, &c.

(*Mr. Town Clerk.*) In former days it was a pure limpid stream, turning two mills, but when the barracks were made about half a century ago, they put the drainage into that stream, and since then it has been polluted.

3256. (*Chairman to Mr. Rayne.*) Do you remember the date of your complaint?—It would be in September 1849, but I could not give the exact day.

3257. To whom did you complain?—Dr. Headlam was on the bench.

3258. To the borough magistrates?—Yes; I called their serious attention to it

3259. What measures did they adopt in pursuance of that?—I think nothing was done till lately.

3260. How many years, or for what period did that nuisance remain unremedied?—It was open at the beginning of last year to a considerable extent, and it is open now to a considerable extent; there has been no great deal done to it. It is closed in the immediate vicinity of Lovaine place.

3261. When was it closed?—(*Mr. Town Clerk.*) The town surveyor tells me that it was began to be closed in about two years ago.

3262. Would it be a correct statement, that this nuisance, complained of by Mr. Rayne in 1849, remained practically unremedied in any degree till the year 1851 or 1852?—(*Mr. Town Surveyor.*) Yes; there is a considerable part of this water course uncovered yet.

(*Mr. Town Clerk.*) The corporation had no right whatever to enter the property, but by negotiation with the parties.

3263. (*Mr. Simon to Mr. Town Surveyor.*) Is it the case that that water-course is open at the present time for the whole length of Pandon Dean?—It is considerably below that.

3264. In the interval between the corner of New Bridge-street, and Ellison-place, what distance may that be?—I suppose three hundred yards.

3265. Of those three hundred yards, how many are covered in?—Probably one hundred and fifty.

3266. Is there a dense population in that neighbourhood?—No, scarcely any.

3267. Have the inhabitants of Ellison-place at times complained of offensive smells?—They have.

3268. Have the inhabitants of George-street?—Yes, they have.

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3270. (*Chairman to Mr. Town Clerk.*) With reference to the point of jurisdiction, when you say that you had no jurisdiction, and no right to enter upon the premises but by negotiation with the parties, do you think there was no jurisdiction under the Nuisances Removal Act to abate such a nuisance.—(*Mr. Town Clerk.*) You might perhaps have applied the Nuisances Removal Act since 1848.

3271. Can there be any question or any doubt in the matter, when the words are, "Ditch, gutter, drain, privy, cesspool, or ash-pit, kept or constructed so as to "be a nuisance to, or injurious to the health of any person?"—(*Mr. Town Clerk.*) The fact has to be established. The question of nuisance or no nuisance has to be tried; and if it had been indicted for a nuisance before a jury, I am not at all prepared to say that they would have found it one. In order to remove it effectually, an expensive conduit must be made, and a good deal of property removed, and that could not be done without negotiations with the parties. Difficulties caused delay. Those negotiations have been pursued, and to a great degree effectively; and the nuisance has been to a great degree abated, and permanently abated; it being covered in by an expensive archway. It is a brook containing a considerable quantity of water, and you cannot exclude it from the day without occupying a considerable space.

3272. (*To Mr. Rayne.*) Have you often noticed smoke or noxious effluvia in this town?—Yes; no two chimneys are worse than those of a late magistrate and a present one, Mr. Robert Plummer and the late Mr. Crawhall.

3273. (*To Mr. Town Clerk.*) Has there been anything to prevent your putting in force the 89th clause of the local Act of 1846, for preventing smoke and noxious effluvia?—It has not been effectually put in force. I will show you in detail everything that has been done under that Act at the proper time; but nothing effectual has been done. There is a clause in the Act of the last session, which we expect to be able to put in force without the difficulties which have attended that.

3274. (*To Mr. Rayne.*) Are there any other points on which you would wish to offer any evidence with reference to the sanitary state or the administration of the sanitary laws in existence in this borough?—Nothing more. I think I have said sufficient.

3275. (*Mr. Simon.*) As respects the evils of which you have spoken, is it your belief that they exercised an important influence in aggravating the late attack of cholera in this town?—I think they were a predisposing exciting cause of the cholera as an epidemic, in connection with other influences, which you will examine me upon, I suppose.

3276. Do you consider that the severity with which this epidemic affected Newcastle in particular, was due, more or less, to the sanitary evils of which you have spoken?—I do, and to the bad water.

3277. (*Chairman.*) Had you occasion, in the course of last year, to notice the condition and quality of the water particularly?—Yes. I had various complaints made to me by different people in the town of the bad water.

3278. Can you remember at what time those complaints first were made?—I think in August and September it was shockingly bad.

3279. When you say it was shockingly bad, what do you include in the epithet "bad?"—Bad to the eye in colour, bad to the smell, bad to the taste, and bad in its effects.

3280. With reference to the colour, I believe it was turbid?—Yes; on September 12th, between the Sunday night at twelve o'clock and six o'clock on the Monday morning, I saw five people die. I was, perhaps, at twenty cases, or more, of cholera between seven at night and that time in the morning. Mr. Simon is aware of the dreadful degree of thirst on cholera patients. They asked me what they were to drink. I said, "Cold water is "the best thing." They said, "We cannot drink the water; we are poisoned with the "water." And when it came from the tap, it was perfectly true; it was in a shocking state. I could compare it to nothing but porter in colour.

3281. Of what district are you speaking?—I was called to the Trinity House at twelve at night; and between the Trinity House and Pandon I was called to five cases.

3282. In the Pandon district?—Yes; but in my own district, in Blackett-street and Eldon-square, it was shocking. I was in the habit of taking a cold bath, and could not take my cold bath, it was too offensive.

3283. Do you say that the water poisoned these people?—No, I do not say that it poisoned them; but the people said it did. But I state on oath that the water was so bad that I consider it was a predisposing cause to excite cholera in the town.

3284. (*Mr. Simon.*) You have spoken of the smell of the water?—It had a bad smell.

3285. Was it the smell that we generally call fœtid?—Yes; the smell of decomposed feculent matter; organic matter going into decomposition.

3286. In times of great excitement and anxiety, such as this, of course the fact of the water being very muddy (which there seems to be no difference of opinion about) would frighten the general public very much. If sand, for instance, was diffused in the water, it would excite a great alarm, from the mere turbidity of the water; I am very anxious, therefore, to be very precise on this point?—It was more than sand; sand will fall to the bottom on standing, but the colour never disappeared, and as it stood the smell got worse.

3287. The water of the Tyne is apt to become discoloured by peat?—It is; but there were no spring floods to bring the peat down.

3288. (*Mr. Bateman.*) Were there no freshes at that time?—No.

3289. (*Chairman.*) Are you speaking of a particular day?—No, but of perhaps six weeks. It was nearly all dry weather.

3290. (*Mr. Simon.*) During a considerable period you can, from your own personal knowledge, answer to these facts, that the water had a fœtid smell?—It had.

3291. As well as a turbid condition?—It was a very common thing among the better class, to hear them complain that they could not clean their teeth with the water.

3292. Can you speak from personal knowledge of the taste of the water?—I can. I am not in the habit of drinking Newcastle water (I drink Seltzer water) if I can help it, except boiled with tea, or anything of that kind. I came in very late, between 3 and 4, during the time of the cholera, (several times I did not get to bed at all) and was very thirsty. I was out of Seltzer water, and was forced to drink the other, and was sick with it. Now I had had nothing to disagree with me, for I had nothing since 4 o'clock in the afternoon, and had then had a chop and my tea. I state that upon my solemn oath.

3293. (*Mr. Town Clerk.*) At what period of the cholera was that?—When it wa sso bad.

3294. Before the 15th September, when they ceased to pump from the Tyne?—Yes; I am positive it was on the Monday or the Tuesday before.

3295. You would see an immediate change in the water when they ceased to pump from the Tyne?—No; I did not see much change in the water after they did cease to pump from the Tyne. The water was still discoloured, and in a very bad state.

3296. (*Mr. Bateman.*) Was the discoloration in the water which you speak of due, apparently, to discoloured river water, or to turbidness arising from the washing of the reservoir?—It was more than the mere discoloration of the river water as we have it from the peat. If you go to Hexham you see the tinge of the peat in pure water; but you have it here mixed with mud; you have more than peat discoloration in this neighbourhood, in water pumped up only 200 yards above the bridge here.

3297. (*Mr. Simon.*) Have you any knowledge of ill effects produced by the consumption of Whittle Dean water in Newcastle at that time?—Whenever I found diarrhœa, I particularly asked if they were drinking Whittle Dean water. Choleraic symptoms prevailed to a considerable extent in this town, and I found they were all taking Whittle Dean water.

3298. Had you any cases within your own observation, where a discontinuance of the use of that water was followed by an immediate cessation of diarrhœa?—I cannot say an immediate cessation of diarrhœa; diarrhœa, in my opinion, does not cease so suddenly as that, especially where the poison has been passing into the system for many weeks together.

3299. Did you happen to apply any chemical tests to this water?—No, I do not consider that I am chemist enough to employ any chemical tests satisfactorily.

3300. Probably no chemical tests applied to the matter under consideration would be more conclusive than the fœtid smell and putrid taste?—I think not.

3301. Therefore we are very anxious that there should be no misapprehension upon this point. You have not the slightest doubt of those facts in the condition of the water?—I have not the least doubt whatever.

3302. Can you refer to any other persons with whom you conferred upon the subject, and who were led to form a similar opinion of the condition of the water?—Mr. Furness, the surgeon, and Dr. Robinson, both of them remarked upon it at the same time that I did in very strong terms. Mr. Furness saw the colour of the water, when I took a cold bath, when I was choleraic. I was choleraic and under great depression.

3303. (*Chairman.*) You have stated generally your opinion as to the quality and condition of the water. You have also made one statement, which obviously must have been entirely within your own personal knowledge, and upon a point on which your knowledge as a medical man would give your opinion great weight. You state that on a particular day a draught of Whittle Dean water made you sick?—I do.

3304. I want to fix precisely that date?—It would be on the Wednesday morning, the Monday would be the 12th; it would be the 14th of September.

3305. (*To Mr. Main.*) Was it the 13th on which you took the Pont water?—It was; in the morning.

3306. Was it the 15th on which you discontinued the Tyne water?—Yes.

3307. Therefore, on this Wednesday morning, the 14th, you will have been supplying Tyne water?—No doubt of it.

3308. (*Mr. Bateman to Mr. Main.*) You have heard the statements just made; I presume you do not affect to dispute that the water was at that time frequently discoloured?—No.

3309. In your opinion what did that discoloration arise from?—It arose in the first place from the peat which comes down with the Tyne water in the autumn, and secondly from the discoloration caused by the land floods.

3310. (*Chairman.*) Surface washings of the land?—Yes.

3311. (*Mr. Bateman.*) Was there nothing in the then state of the reservoirs at Whittle Dean which would have contributed to that state of the water?—No, there could not be; because on the 6th of October, when we reached our lowest, the reservoir of Whittle Dean, contained eighteen feet nine inches of water.

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3312. Was the water perfectly colourless at Whittle Dean at that time?—Yes, we have our superintendent's statement to that effect.

3313. If that be so then, all the discoloration which has been complained of must have arisen from Tyne water?—Except that there might be a slight discoloration when the water in the low reservoir at Whittle Dean got below the penning.

3314. (*Chairman.*) Did it at any time get below what you call the stone penning?—Yes.

3315. (*Mr. Bateman.*) Was it at the end of August, or the beginning of September below the stone pitching?—I think it did not get below the stone pitching till the middle of September.

3316. (*Mr. Simon to Mr. Rayne.*) There seems no misunderstanding with regard to the smell, but we are not quite sure that we are to understand you to say that the taste also of this water conveyed to your mind the notion that it contained decomposing organic matter?—There is not the least doubt of it.

3317. (*Chairman.*) You intimated that you were prepared to offer an opinion on the gas?—I am.

3318. Will you be good enough to state to us what that opinion is?—I consider the gas is bad; frequently very short in supply and very impure. The gas company find it to their advantage to have impure gas, because it takes a greater quantity to drive the meter; that is to say, it takes a greater power to drive the meter, and so the index of the meter points out a greater quantity and a greater expense to the consumer.

3319. With reference to its effect upon the public health, have you any opinion?—I consider that, when individuals are shut up with it in close rooms and shops, it must be bad for the air-passages, the lining membrane of the air-tubes.

3320. (*Mr. Simon.*) Are you of opinion that the gas used in this town diffuses on combustion a certain quantity of sulphuric acid?—I am.

3321. (*Chairman.*) Besides the general impression which you have of its effects, do you think you could trace any individual instances of such bad effects?—I have frequently found people complain of the gas, and I have gone into close rooms where three or four lights have been burning, and have found sulphuric acid there.

3322. Could you give us any instance of any person, whose health was affected to any appreciable degree by the bad quality of the gas?—I cannot say that this actually ever brought on a case of bronchitis; but I should say that where people are suffering from hronic bronchitis, or where there is any affection of the mucous membrane, the sulphurous acid gas would have a tendency to increase it.

3323. (*Mr. Simon.*) You can speak of it as exerting an unwholesome influence generally, but not as having any particular bearing upon the subject of cholera?—No.

3324. (*Chairman.*) Have you any other observations to offer?—I think not.

3325. (*The clerk to the board of guardians.*) I believe your practice has not been principally amongst the humbler classes?—My practice is a good deal amongst the humbler classes as well as the better classes.

3326. Is it any part of your duty as surgeon to the police force to inspect the ash-pits and to ascertain whether there has been white-washing in the internal part of the houses?—It is not my duty as the police surgeon; I never had such instructions issued to me by the police authorities.

3327. Will you be good enough to tell me whether the medical district officer, in whose district these localities are which you have been speaking of, would not be able to form a better judgment as to the sanitary condition of these localities than yourself?—I am daily in those localities; I attend the manufactory of Locke, Blacket and Company; they have nearly 500 people, and they are scattered about the different low localities of the town, the same as your paupers are.

3328. (*Mr. Simon.*) As surgeon to the police, do you visit the members of the police force in their different residences?—Yes.

3329. Are these also scattered about the town?—Yes; and I am frequently called in, at the instance of the police, to people who have received accidents and injuries, that come before the police.

3330. (*Chairman.*) Have you such an experience of these districts as would justify you, as a medical man, in forming a confident opinion upon these points?—I have.

THOMAS A. FURNESS, Esq., sworn.

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3331. (*Chairman.*) You are surgeon, I believe, to the Newcastle dispensary; and were formerly assistant?—Yes.

3332. And to the eastern dispensary also?—I am.

3333. How many years have you practised in this town?—About fifteen years, I think, since 1839. I have known the town since 1832. I then came as an apprentice to Sir John Fife.

3334. Have you any reason to doubt the accuracy of the annual reports, either of the infirmary, dispensary, or fever hospital of this place, as regards either statements of fact or expressions of opinion?—I should think they were generally correct.

3335. During your services at the dispensary, have you been accustomed to visit patients at their own residences?—I have.

3336. Are you acquainted with the localities in which the epidemics that you can remember, were chiefly prevalent?—Yes.

3337. Will you mention two or three of them?—Sandgate, Pandon, Blyth's Nook, Craig's-alley, Pandon Dean, Castle Garth, and the Close.

3338. As surgeon to the eastern dispensary also, have you had occasion to see patients in the eastern part of the town?—I have.

3339. Have you had such an acquaintance with these localities as would enable you to form a confident opinion as to their sanitary condition?—I think I have.

3340. What generally would be your opinion of the state of these places, say in the years 1848 and 1849; were they then in a good condition?—I have never seen them in what I call a good condition.

3341. What was the condition of those places, say in 1848 and 1849, as compared with what it is at the present time?—In 1848 and 1849 I did not visit these places so much. I was not then assistant to the Newcastle dispensary, and was not so well acquainted with them.

3342. Have you very recently visited some of these localities?—I have.

3343. Inspecting them minutely?—Some of them I have inspected minutely; others not very minutely.

3344. What is your opinion as to their state at that recent period when you did inspect them?—It was very bad.

3345. Do you think worse or better than immediately before the last outbreak of cholera?—I saw very little change.

3346. You think they were then in as bad a state as they are now?—I think they were very much the same, as far as I saw.

3347. When you say that you have never seen them in what you call a good condition, what points would you specially allude to as evidences of their being in a bad condition?—The lying about of refuse, human excrement, decomposing animal and vegetable matters, stagnant water, and so on, the absence of privies, and the want of proper drainage.

3348. Are you able to speak also as to the interior of the houses?—Some of them are very damp.

3349. Do you think it would be easy, taking Sandgate as a district, taking Pandon and thereabouts as a district, and taking Castle Garth, the Close, and thereabouts as a district, to put those districts generally into a condition fit for human habitation?—I fear as to some of them it would not be easy.

3350. As to the interior of the houses in these districts, is there any other defect besides dampness which you have noticed?—The want of ventilation.

3351. Was that want of ventilation a want inherent in the form and construction of the courts and houses?—In many of them it was.

3352. Have you anything to say as to overcrowding?—Yes; I have seen overcrowding.

3353. At some one particular time, or habitually?—I have habitually seen overcrowding.

3354. Did you see a good deal of the cholera during the late epidemic?—I did.

3355. Have you any opinion to offer as to how far that may have been aggravated by the circumstances to which we are alluding?—I think it was very much aggravated by them.

3356. Do you think that these districts, which I have mentioned, could have been put into a condition so much better as materially to mitigate the ravages of the recent epidemic?—I think they could have been put into a state which would materially have mitigated the ravages of the epidemic.

3357. Supposing active temporary measures of cleansing, purifying and whitewashing and so on had been adopted, do you think that that might have had a considerable effect in mitigating the epidemic?—I think it would have had an effect.

3358. Have you any opinion to offer as to the quality of the water during the past year?—Yes, I have; it was very bad in quality.

3359. Do you remember any dates specifically?—It was very bad in July, August, and September. I recollect perfectly that in those months it was very bad.

3360. What do you mean, when you say that the water was "bad?"—It was very bad in colour, it had a very bad smell, a very unpleasant taste, and certainly produced very unpleasant symptoms sometimes. I speak as regards myself; it gave me diarrhœa two or three times; at least I blamed it, I had nothing else that I could blame for it.

3361. When you say bad in colour, was there any opacity about the water, or was it a transparent bright colour, such as you habitually see in peaty water?—It was dirty; it was like dirty water; there was a species of dark vegetable matter floating about it, and I saw shrimps in it. It also had a very bad smell to me, and there was a great sediment when it stood.

3362. Are you confident as to the bad smell?—I am; I experienced it myself.

3362A. Did you attribute it to the presence of decomposing matter?—I attributed it to that.

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3363. With reference to the taste?—It was so unpleasant that I was obliged to give over drinking it. I speak for myself, and I advised some of my patients also to give over drinking it.

3364. (*Mr. Simon.*) Do you refer to the quality of the water from one tap only, or from more than one tap?—I saw it from more than one tap; it was handed to me by some of my patients who were complaining of it, and they asked me if I thought it was fit to drink.

3365. Did they also complain of the smell and taste?—They did. I particularly allude to a family in Wellington-terrace who complained.

3366. (*Chairman.*) Is that in the west or east part of the town?—It is in the part lying between the barracks and Gallowgate.

3367. With reference to the attacks of diarrhœa from which you suffered, did you form a strong opinion as to the water having had some influence in producing them?—I blamed the water, and I think I am correct. I was of that opinion then, and I am of that opinion now

3368. (*Mr. Simon.*) Did you find diarrhœa recur when you resumed the use of the water, after having discontinued it?—I found that once after drinking the water, I had an attack of diarrhœa. I particularly noticed it; and I found that after drinking the water again the next day, or it might be two days afterwards, I was again troubled in that way; in a day or two afterwards, in the same way; I blamed it and discontinued drinking the water.

3369. After that time did you suffer at all from diarrhœa?—I did not.

3370. (*Mr. Bateman.*) Did these attacks follow so immediately after drinking the water, as to be in your mind clearly traceable to the effects of the water?—They followed in a short time. I blamed the water, I may be right or wrong.

3371. (*Mr. Simon.*) Did you observe anything like that recurrence of diarrhœa with any of your patients?—I heard some of my patients complain of the water, that is all I can say.

3372. Did they complain of its effects, or of its colour and taste?—They complained of its colour and taste; and they said that they believed it had an unpleasant effect upon them.

3373. But not more definitely than that?—Not more definitely.

3374. Did they speak either of purging or of vomiting as resulting from it?—No, I cannot say that they did.

3375. Did you make any chemical examination of the water?—No, I am not competent to do so.

3376. (*Chairman.*) Did you ever take a bottle containing the water supplied by this company to a meeting of the board of guardians to exhibit it?— I did.

3377. Was it taken from a patient's house?—It was given to me in a patient's house. There were several bottles standing there, three, I think, and they handed one to me and asked me if I thought the water was fit for human beings to drink; I said I did not think so.

3378. (*Mr. Simon.*) Did that water have an unpleasant smell?—I did not smell the water; I sealed it up, and took it to the board of guardians. I recollect very well that Mr. Ridley, the vice-chairman, was there, and he made a remark that it was not bad, but that it was not good; but I think the general feeling seemed to be that it was unusually bad. Some of them seemed to have an idea that it was very bad; it certainly had the appearance of being so.

3379. (*Chairman.*) What is your view as to the gas question?—I cannot say that I can give any very competent opinion upon it; the gas has been complained of as being very bad, and if it has the effect upon books which they say it has, it cannot, I think, but be injurious to the human constitution. I know that it causes my eyes to smart. I blame it when I am in a room where gas is burning; and I think it must have a bad effect upon the pulmonary mucous membrane.

3380. Have you any knowledge of the locality in which the garrison is situated?—Yes.

3381. Are you aware of the circumstances that occurred in that neighbourhood during the recent epidemic?—Spital Tongues was very much affected with cholera.

3382. And the garrison?—In the garrison they had a good deal of diarrhœa, but I believe they had no cholera.

3383. Have you any opinion to offer on that subject?—I should say Spital Tongues is in a very bad sanitary state, and I have no doubt that within the walls of the garrison it is pretty good. The men are also more robust people. Soldiers are carefully examined before they are enlisted, and they are among the most healthy of the community; they are well clothed, and I think, generally pretty well fed, and promptly attended to.

3384. Discipline, I suppose, is a matter of importance in such things?—Yes.

3385. Did you, in your recent conversation with Mr. Grainger, express everything that you had to say upon the point of the conduct of the Board of Health officers?—No; I waited upon Mr. Grainger with Dr. Robinson on Saturday the 10th September. I heard Dr. Robinson advise Mr. Grainger to call the profession and influential inhabitants together; but Mr. Grainger seemed afraid of producing a panic.

3386. That was a proper feeling, I suppose?—I think a very proper feeling, if not carried too far. But if you are so afraid of a panic as not to do anything almost, I think that is carrying the idea rather too far.

3387. (*Mr. Grainger.*) Mr. Furness has said that it was carrying the fear of a panic too far not to do anything. Is Mr. Furness aware that on the evening of my arrival here, when the guardians met, twenty-two additional medical appointments were made on my suggestion?—(*Mr. Furness.*) I merely say that carrying the fear of producing a panic too far, was not a very good thing.

3388. (*Chairman.*) Is there anything further?—I thought that upon the receipt of Dr. Robinson's letter, something more ought to have been done by the General Board of Health than sending word that they were watching the disease on the continent; I thought it was trifling with a very serious affair rather too much.

3389. Proceed; we wish to have your whole opinion on these matters.—I think there was a neglect in not sooner looking after Newcastle, upon the receipt of Dr. Robinson's letter, sent to the General Board of Health on the 2d of September. It was tantalizing, their sending word that they were watching the disease on the Continent.

3390. Are you cognizant of the efforts made by the Board of Health in consequence of that and other similar communications from other places?—I am not cognizant of any efforts which they made here.

3391. I mean of the efforts which they made in London, with a view to being enabled to respond to that communication?—No, I am not aware of any; I thought that their officers, when they came here, ought to have called the medical profession and influential inhabitants together.

3392. Is that all?—I thought the arrangements were slow and insufficient.

3393. Do you mean both before and after the appearance of the Board of Health officers here?—Yes, I certainly think so. I find that on September the 23d Dr. Gavin stated at the board of guardians, that he had the previous night nearly completed his organization. I take that from the *Newcastle Chronicle* of September the 30th, so that on the 22d of September he had nearly completed his organization. Now, on the 20th of September the deaths were 118; on the 21st they fell to eighty-four. On the 22d of September the deaths were only sixty, so that Dr. Gavin had got his arrangements nearly completed, when the deaths were little more than one-half of the maximum; and I think that was slow. They neglected also to make known publicly their arrangements. I have never learned to this day what the arrangements were. If I had wanted any blankets for poor people, I did not know that there were any depôts for such things. Mr. Winship, who is the medical officer to the union in our district, was ill. The people were besieging my door, close beside his, from his district; I did not know where to send them; I could not attend to them myself, and I thought I ought to have known whose duty it was so to do. I thought some arrangement ought to have been publicly made as to where I could send them. I did not know whether Mr. Winship had an assistant; and it was very lamentable for me to have to send away people in distress, when I could not tell them where to go or where to seek for assistance. I have met them in the street towards the afternoon, telling me they had been running about all day, seeking for a medical man, without being able to find one, and begging and imploring me to go with them.

3394. What date was this?—I cannot exactly remember. I remember a very old man; I was in a great hurry; I took compassion upon him and went to see his wife; it was at the end of Low Friar Street, I could go to the house, but I do not remember the name.

3395. The date in such matters as that is all important?—I cannot remember the date, it was during the epidemic; I thought that the arrangements ought to have been publicly known by that time: I am convinced that there had been plenty of time to make the arrangements public. And I think the medical men in the town, at least, ought to have known what arrangements were made. There was a secrecy about the arrangements, I thought. I do not know that it was intentional; but I thought they should have been made public, and I think the medical men should have been invited to co-operate.

3396. You are speaking of the arrangements made by the board of guardians, on the advice or with the assistance or concurrence of the officers of the Board of Health?—I do not know to this day anything of the arrangements. A person came to me and asked me if I could send any one up to the tents. I knew nothing about the tents. If I had asked any person to go to the tents, they would have asked me: "Mr. Furness, what are the "arrangements about the tents; is there any bedding there?"—"I do not know." "Is there "any fire there?"—"I do not know." "Is there any water there?"—"I do not know." "Is "there any food for us there?"—"I do not know." "Where are we to get it?"—"I can-"not tell." Could I, under such circumstances as these, send any one into the tents when I could give him no information whatever about them?

3397. Do you doubt that all requisites would have been provided, as well as tents?—It might be so; I know nothing about the arrangements. I do not doubt but that these requisites were provided, but I know nothing about them.

3398. Would it be reasonable to doubt, where either the board of guardians or the Board of Health officers or any public body established such things, that all requisites would have been provided along with them?—It might not be very reasonable to doubt it, but it seemed to me that I ought to have known.

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3399. Do you think that any one ever seriously doubted it?—I do not know that they did. I waited upon Mr. Harvey, one of the poor law medical officers, when he was ill and volunteered to see any patients for him. He asked me if I would take a district and I said no. I particularly told Mr. Harvey that I could not take any district.

3400. It was suggested to us originally, that the Board of Health officers had done unwisely in sending for medical students from afar, instead of employing the practitioners of the town, and now you say that you yourself declined to take a district?—I did.

3401. Do you think that many others of the practitioners of the town would similarly have declined, supposing the Board of Health officers had applied to them to take districts?—I cannot speak for others.

3402. What were your peculiar motives in declining to take a district?—Because I had a good deal to do in private practice and could not attend to a district properly.

3403. (*Mr. Bateman.*) You state that you did not know anything about the arrangements?—I do.

3404. And when poor people applied to you you could not tell them anything about them?—No, I could not.

3405. Could you not have referred them to anybody who could have helped them in that way?—Indeed I could not; I did not know where to refer them; I might have sent them to medical gentlemen that I knew, but they might not have found them in.

3406. Did it never occur to you that the board of guardians were entrusted with the attendance of the sick?—The board of guardians were not sitting during the day.

3407. You were quite ignorant of any quarter to which you could have sent them for assistance?—I was ignorant. I remember very well telling those persons that they had really better go down to the Central Station Hotel, and ask Dr. Gavin where to go, for I could not tell them.

3408. Is it your opinion that other medical men were equally uninformed with yourself upon those points?—Yes.

3409. (*Chairman.*) In stating that you thought the Board of Health might have done more than sending down word that they were watching the disease on the Continent, did you refer to a passage in the letter in reply to Dr. Robinson's letter?—Yes.

3410. Are you aware of the words immediately following the words to which you thus refer?—I do not recollect them at present. I have no doubt I have seen them, because I have read the letter over.

3411. The words, to which I allude, are part of the same sentence, and are as follows: viz., that the Board of Health are also "closely watching the progress of the disease in "this country?"—I do not recollect that; I have no doubt it is so. I remember the other passage; it struck me as being rather peculiar.

3412. (*Mr. Simon.*) I am sure you will agree with the Commission that it is likely to produce a wrong impression, as to the interest which the Board of Health took in that very important crisis, if only a fragment of that letter is quoted?—I have not the letter, or I should be very happy to read the whole of it.

3413. It was a letter addressed to Dr. Robinson?—Yes.

3414. And he showed you the letter?—He showed me the letter.

3415. (*Mr. Grainger.*) I think the letter of Dr. Robinson stated that one case of cholera had been seen by him, and that indications he thought threatened an attack of cholera. I think he spoke of one case at Bill Quay?—(*Mr. Simon.*) Two—(*Mr. Grainger.*) Two cases. Twelve months previously, in other various parts of England, there had been many cases of cholera, which had not been followed by any epidemic attack; and there were several cases of cholera in London just before Dr. Robinson's letter came, which had been inquired into by the direction of the Board of Health, and in respect to which it was stated, by the medical officers of Lambeth, Rotherhithe, and other epidemic districts of London, that they were sporadic cases of cholera, and that there were no indications of any epidemic attack of cholera in London. That was on the 30th of August 1853, three days before Dr. Robinson's letter arrived; and therefore these two cases in Bill Quay seemed likely to be of the character of those which had occurred in various parts of England, and which, having been inquired into, had been found not to be epidemic.

3416. (*Chairman to Mr. Furness.*) Are you aware that in other places, about the same period, cholera had occurred in a certain number of cases, without ever becoming epidemic?—I may have heard so. I do not much recollect.

3417. Probably that would account to you partly for the Board of Health not immediately leaping to the conclusion, that the two cases mentioned by Dr. Robinson must necessarily be the forerunners of a serious epidemic of cholera here?—I have not the least doubt that the Board of Health thought so.

3418. Is there any other point on which you would like to offer any evidence?—I may mention that there were no proper places to receive the dead previously to interment, the dead lying amongst the living. I did not see this, but I have Mr. Newton's authority for it. I believe Mr. Grainger saw it himself.

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3419. (*The Clerk to the Board of Guardians.*) I believe during the epidemic you had not unfrequently interviews with Mr. Newton?—I do not recollect that I had. I saw Mr. Newton at the board of guardians, but I do not recollect that I ever had any other interview with him. I may have had.

3420. You of course sympathised with that section, of which Mr. Newton is a member?—I do not know what you mean. If you mention to me the particular things in which you think I sympathise with him, I can tell you.

3421. You have advocated the side of that section of the medical men in this town, who are, I believe, designated as the practical college of science, or by some such designation?—I never looked upon cholera as a party thing.

3422. Have you not written upon the subject?—No; I am not aware that I have written anything.

3423. Have you written anything with reference to the board of guardians, censuring them?—I do not recollect.

3424. Have you written any letters in the public papers?—I never wrote any letter in the public papers, but one, when I wrote to correct a mis-statement about myself.

3425. In that letter did not you undertake to pass an opinion upon the authorities with reference to this epidemic?—I do not think I passed any opinion. I said, to the best of my recollection, that it was another proof of the confusion and uncertainty which have prevailed. I do not remember the words I used; but the letter is on record.

3426. Had you never strong opinions upon that point?—Upon what point.

3427. As to the conduct of the authorities?—I thought that the arrangements were slow and insufficient.

3428. You have told us that you felt great difficulty, when there was a necessity to have clothing, to know where it was to be found?—I did not know where it was to be found.

3429. Did it ever occur to you to suggest to those persons in need of clothing, that by an application to the guardians they would be informed?—It was never made known to me, and I thought that it ought to have been made known to me and other medical men.

3430. Did Mr. Newton never tell you that the relieving officers had instructions in all cases to provide clothing?—Mr. Newton never told me so.

3431. Have you never conferred with him as to the defect of arrangements for supplying clothing?—No, I never recollect talking with Mr. Newton upon it, any further than making a general remark that there was a defect in the arrangements. I considered these things defective.

3432. But you never mentioned anything about the difficulty you felt as to clothing?—I do not recollect mentioning it particularly to Mr. Newton.

3433. In point of fact, feeling that difficulty, you never took any steps to ascertain how it could be remedied?—I was very much engaged at the time, and had not time to look after these minutiæ. I think that these things ought to have been made known to me and others interested.

3434. (*Mr. Simon.*) Do you think that your not being quite cognizant of these arrangements may have depended more upon the fact of your being very much engaged than upon any secrecy in the arrangements themselves?—I thought there was a want of publicity in the arrangements then, and I remain of the same opinion now.

3435. (*The Clerk to the Board of Guardians.*) Of course you would have no time to look upon the walls to see if there were any notices posted there?—I saw notices after the 15th September upon the walls relative to certain districts, and where persons could get medicines.

3436. And clothing?—There was nothing said about clothing.

3437. Did you make any complaint to the board or to any public authority as to the want of these provisions and clothing?—No, I never made any complaint to the board.

3438. (*Mr. Bateman to the Clerk to the Board of Guardians.*) Were there such notices upon the walls?—There were.

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3439. (*Chairman.*) You have practised in Newcastle as a surgeon for some years?—Fifteen years.

3440. You were previously in Egypt, and saw the cholera of 1832 there?—Yes, and of 1836 also, being then surgeon-in-chief.

3441. I see in some evidence which you recently gave to Mr. Grainger, and which he forwarded on the 12th September 1853 to the General Board of Health, you said that you had had a distinct case of cholera some six weeks previous to that time?—Most decidedly, about the 21st of July.

3442. And one about two weeks previous?—The 27th of August.

3443. You mentioned that there had been no communication whatsoever between those persons and ships or sailors coming from any infected locality?—Not that I know of.

3444. You also attended what were considered to be the first cases in Newcastle?—Yes, in Forth-street, four in one house.

3445. Were those previous to the cases at Bill-quay?—I think one occurred on the night and the other in the morning of the same day; that is to say, the 1st of September and the 31st of August.

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3446. The inhabitants of these houses, also, where these cases took place, had had nothing to do with shipping or sailors?—I think not, for the parties were generally connected with the Carlisle Railway, and I do not know that they had anything to do with shipping in any manner.

3447. Did you say that there were no particular causes of unhealthiness in the locality where these cases occurred?—I should say not, for the parties were in a pretty respectable sphere of life, and a main sewer had been put into the street perhaps about five or six months before. The street was rather more than an average good street. The houses were not crowded, and one side of the street was a total blank. The railway wall was opposite. I should say the air was good, and many of the circumstances very favourable.

3448. Do you know what was the state of the drainage in that street?—I think various of those houses had not a communicating drain into the main sewer. One house had a communicating drain and a water-closet, and there were two very severe cases in that house. The people were in good circumstances, and with every comfort that they could obtain.

3449. You would not expect that the mere fact of having a water-closet in a house would secure to the inmates any immunity, if its other arrangements were in a bad condition?—I should think very often a water-closet is a source of prejudice in itself.

3450. Is there any other point on which you would wish to speak?—I can mention that I saw cases of cholera in Newcastle in most parts of the town, and in many which I consider very healthy and well situated. For instance, I saw cases of cholera in Collingwood Street, close to my own house, which is a very excellently-drained street, and I believe they have all those conveniences which have been referred to—drains, probably, as well as water-closets.

3451. What is the special locality in Collingwood Street where these cases occurred?—I think No. 3, as far as I recollect.

3452. (*Mr. Bateman.*) Your own house is at the corner?—Yes.

3453. Was it next to you?—Yes; then further along the street, on the opposite or the drained side, there were cases which I did not see, but I know that people died in that street. Then again over at the Spital, in a very open, airy situation, there were two cases of cholera in a house, and the people certainly were in good circumstances, and I can see no reason why they should have been attacked.

3454. (*Chairman.*) Did you inspect the premises minutely on each occasion?—I did not inspect the premises, because I was pretty well aware of their condition. I saw nothing by which I could account for those attacks.

3455. Were those houses in Collingwood-street, to which you allude, all furnished with water-closets and drains?—I think they were, to the best of my knowledge.

3456. (*Mr. Simon.*) Had they privies besides the water-closets, or had they only water-closets?—I think only water-closets. In short, various of them have no room for privies. There must either be water-closets, or the refuse must be carried out in the morning.

3457. Do you suppose that in these houses the servants as well as the masters and mistresses use water-closets?—I should think it more than probable.

3458. (*Chairman.*) Do you know whether in these houses, to which you are alluding, the refuse was actually carried through the house in the morning, or whether they actually had water-closets?—In the one that I most allude to, I certainly do not know whether it was carried out or not.

3459. (*Mr. Newton.*) What is the condition of the back premises on the north and south sides of Collingwood Street—of Pudding Chare, on the north side of Collingwood Street, in which there were twenty-five deaths from cholera—and of Denton Chare, on the south side, where there were a fearful number also? or do you know the condition of the houses in Denton Chare and in Pudding Chare?—Yes, I think I have a pretty good idea, being in my own locality. Certainly I cannot say whether they have water-closets or not, but I know that the filth is carried to the doors, having seen it. From Denton Chare they bring their buckets out into Collingwood Street.

3460. (*Chairman.*) Supposing it should turn out that Collingwood Street has, close on the one side, a very bad place called Pudding Chare, and on the other side also a very bad place called Denton Chare; you would not be surprised, probably, at some mortality arising in these Collingwood Street houses, even supposing those houses themselves had been put into a proper sanitary condition?—Knowing that cholera was in the atmosphere, I felt no surprise at finding it in any part of the town whatever. It is the thing I expected, and confidently looked for, when I knew it was in Hamburgh and Copenhagen.

3461. You do not see any connexion of cause and effect between filth in the vicinity, and mortality in the houses?—Of course, the cleaner the neighbourhood is, the better the sanitary condition will be; but I deny in toto that filth has anything to do with cholera whatsoever, and I maintain that I have seen it break out in places where you could not find any bad sanitary arrangement. I recollect that at Alexandria the fleet was sent out to sea to be out of the way of the cholera; and on board one frigate the cholera broke out—although she was cruizing several miles from the port—and 265 were thrown overboard in eight days.

3462. Was the ventilation good in that frigate?—Of course, with open gun ports on each side, it is the most admirably ventilated building you can conceive in a warm climate. There is another point—the hospital in Alexandria I consider a model hospital, and one of the best in the world, containing, on the average, from 1,000 to 1,500 sick and wounded. The cholera, in 1836, broke out in that hospital. Every room in that hospital, with the exception of four, contained no more than six beds; each room had a separate window and door, with an open arcade running round in front. Taken altogether, I should say it was a model building of the sort. The cholera broke out there, and on the first night, before we were aware almost that it was in the neighbourhood, twenty-seven of the ordinary patients of that hospital died. After three weeks the disease spread into the town, and was very considerably fatal.

3463. Do you think that cholera in its ravages is independent of predisposing local causes?—No, I certainly do not: and one predisposing cause is lowness of level and dampness; but I do not by any means admit, either that low level or that filth is very likely to cause the ravages of cholera. I rather hold that in a very dirty, filthy neighbourhood, there are generally people of a corresponding stamp; they are either dissolute in their habits, or intemperate and badly clothed and badly fed, and very possibly all their money going in the shape of drink; and therefore they are more subject to any epidemic.

3464. (*Mr. Simon.*) Can you state whether that house in Forth Street, where the four cases occurred, was drained into the sewer?—I think it is not; the next one is, and two cases occurred in that. I may also mention that I saw a number of cases in Blandford Street, in the best part of it. I do not think it is considered a bad street by any means Again, I saw cases in Elswick Lane, part of the highest ground in this town. I also saw a case in Elswick Row, which is reckoned a very well situated row of houses. I saw cases at Low Benwell, on the open turnpike, with the breeze of the river and everything in their favour, I should say; and I know that at another place called the Crooked Billet, a man died also, and I should say that he could not have had a more favourable situation. It was very nearly exempt from any pernicious influence from Newcastle at any rate.

3465. (*Chairman.*) Are you minutely acquainted with the sanitary condition of these places?—I cannot say that I am minutely acquainted with them, beyond having frequently visited those places, and having a general idea of them, and of the town in general.

3466. You know from their situation that they ought to be, or might be healthy?—Yes.

3467. You are not aware whether they are healthy, or whether the privy arrangements, scavenging, and so on, are in a good state?—I should think that the privy arrangement, in many of the cases, particularly in the outskirts, was the general rule, and not water-closets.

3468. (*Mr. Simon.*) Do you feel interest enough in the subject to make it a matter of inquiry?—I feel a very great interest, something more than interest almost, very nearly indignation, I think; for I will undertake, on the same evidence, to damn any town, an old town, particularly a fortified town. I cannot for the life of me think that this is an inquiry either justified, or altogether impartially conducted. I think the questions have been leading questions. I will take any other town—Paris, Rome, Florence, Naples—any that you like, or that I am familiar with to any extent, and will damn any one, and point out a plague spot.

3469. (*Chairman.*) Do you think that in any other towns in England you would find places altogether as bad as those we have had evidence of here?—I think in Liverpool, certainly as bad; and worse in Glasgow and Edinburgh, with which I am familiar.

3470. (*Mr. Simon.*) Would this matter interest you sufficiently to induce you to give us your list in detail, and to append to each case the result of a detailed examination of the house? That, of course, would be a great deal too much for us to claim at your hands; but if you would be willing to do it we should be very much indebted to you?—I have no doubt that I could do so; but it is not a very pleasant circumstance to go to a person's house and ask to see their water-closets, or anything of that kind. I think, as far as the general arrangements of the houses go, probably I know as much of those houses as other gentlemen who have given evidence respecting them.

3471. Your position, as we have understood it, was this: that these are illustrations, or instances of the occurrence of cholera in places not presenting any sanitary defects; and as in answer to our questions you did not appear to know quite accurately what was their condition, even in respect of the all-important sanitary particular of house drainage, we thought that perhaps it would be satisfactory to you, as well as to us, if you would do that much, in order to clear up the uncertainty now attending those quasi-illustrations?—I cannot say that I attach much importance to it; because I know, from my own personal experience, that in my house those sanitary conditions, in my estimation, have been very prejudicial on many occasions. I have found, when a heavy rain took place in Newcastle, that the smell of the house was really intolerable. The main sewer was flooded; and the foul gases generated in that sewer, were driven back by the reflux of the water into my house.

3472. Surely, in giving us your deliberate professional opinion, you do not speak of those as sanitary arrangements?—I say they are insanitary.

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3473. (*Chairman.*) With reference to your own street I think we have it in evidence that immediately at the back of it you have a chare in a very indifferent condition, and that your own house is liable to be deluged by stinking sewer gases. Under those circumstances you would not probably be surprised at the cholera taking possession of your house, or of your neighbour's house or anybody else's house, that might be in a similar situation?—I should think the communicating drain was a very likely cause of its doing so, provided there had been cholera; but I deny that this communicating drain or filth of any kind could originate it in any shape, it being a poison of foreign origin and not a native of this country.

3474. (*Mr. Bateman.*) As far as the attack of a town by cholera is concerned, do you think that it is immaterial whether that town is in a cleanly or dirty state?—I do not think that in any place you will find a decent mechanic, that is, a sober man, who will inhabit a dirty neighbourhood; and the finding of a dirty neighbourhood ravaged by cholera merely proves to me, that the people suffer those ravages because they are themselves in the condition which I have before described.

3475. Did you mean us to infer, that you thought, because such evidence as we have heard would damn all the old fortified towns in the country, this was a sufficient reason for not damning Newcastle among the rest; or that because other places may be as bad as Newcastle, therefore Newcastle should be allowed to go on as it is?—I should like to see them all pulled down if you could provide the money.

3476. Your objection is to the cost of pulling them down?—I think in this world you must do as you can. In this town the sanitary arrangements have been very much increased of late years; and I cannot say that the epidemics in Newcastle have decreased, but increased.

3477. (*Mr. Simon.*) We shall be very glad to have your evidence upon the point of the increase of sanitary arrangements in the town; to which do you principally refer?—In Westgate Street, up Westgate Hill, there is an entirely new main sewer.

3478. Do the houses drain into it?—Not all, I believe; they have not been able to complete them. It has not been very long in existence.

3479. Are there many of the newly constructed sewers, which are liable to the same objection as that which you quoted in Collingwood Street?—I believe it is the condition of all sewers; that when the main sewer is flooded, foul gases will be driven into the communicating sewers and of course into the houses.

3480. (*Mr. Bateman.*) Is it not part of a good arrangement of the sewers, to provide for the ventilation of those sewers, that the gases may go off without making use of the houses for that purpose?—I think it is much better that you should not use the sewer at all, instead of having vent holes in the neighbourhood.

3481. (*Chairman.*) Did you say, that where you found people dying in filthy localities you thought that it was not in consequence of the filth in the locality around them, but of their own filthy habits?—I think it is partly both.

3482. To a certain degree you would consider that that mortality was owing to filth in the vicinity?—To a certain degree certainly; with this reservation, that a filthy locality will produce diseases of certain kinds, but not cholera. I have seen so much of cholera; and where there was anything but that filth which you speak of, cholera has raged fifty times more than it ever did in the Newcastle population.

3483. (*Mr. Newton.*) Do not you think that, in St. John's, the people are filthier than in Sandgate?—No; but if so, it proves to me, from Mr. Newton's own showing, that the dirtiest part of the town has suffered least from cholera.

3484. (*Chairman.*) We have had evidence to the effect that Sandgate has been considerably improved of late times—that it has had paving and a little draining, and considerable scavenging—in fact, I think that almost every district medical officer, one after another, has said that Pandon, and probably the Castle Garth and Close district are worse than Sandgate?—I do not think the Castle Garth is, by any means, to be placed on a footing with either Sandgate or Pandon. I think the Castle Garth, to a certain extent, unexceptionable in comparison with the other two, but I certainly think Pandon as bad as the other.

3485. (*Mr. Newton.*) Can you account for the fact that twenty-five persons died in Pudding Chare, close to Collingwood Street, in St. John's parish; and do you know any other portion of the town that has suffered to the same extent?—I can very easily account for it, on Mr. Newton's showing; that Pudding Chare, though not a dirty locality, is a most densely populated one. I think that almost every room contains not only a family, but a number of lodgers. It is a very narrow kind of street, and the population is certainly very dense; and I think that fever, cholera, or any other epidemic is very likely to break out there. The population is chiefly Irish.

3486. (*Chairman.*) It is dirty, overcrowded, and ill ventilated?—Yes.

3487. Do you think that those points had anything to do with the great mortality alluded to?—The want of ventilation, I should say, very materially. It is the very locality where I should look for it.

3488. That is an important point. Is there any other point?—It is rather disagreeable to offer. I would much rather have had the same examination as others, and I would have spoken generally.

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3489. The other medical gentlemen whom we have examined have been officers either of the infirmary, or of the dispensary, or of the fever hospital, or of one or other of the union districts, necessarily having official cognizance of the contents of certain reports, from which we have drawn special information, or of certain limited districts, with respect to which we could reasonably expect definite official information from them. You happen to be the first medical man we have examined who has not held some appointment, affording him an opportunity of acquiring official information on some point or other, and affording us a clue whereby to examine him; but for all that, we shall be most anxious to receive any evidence you may have to give?—I am sure I have no anxiety to be questioned whatsoever. One remark, however, I would make particularly in regard to the water. I may possibly have drunk as much dirty water as most people, and I have this to say, that I am not aware that I ever suffered from dirty water. I drank the Whittle Dean water all the time during that epidemic. I cannot say that I felt anything from it except this, and this I maintain to be a general fact, that in all countries where cholera rages to a considerable extent, there is not one person out of three but has pains in his bowels. The water was certainly very turbid, very dirty, and not to be desired so far as its appearance went; but I cannot say that I attribute cholera in any respect to it whatsoever.

3490. (*Mr. Simon.*) Did you find that it had any unpleasant taste or smell?—I used it at my table every day. It is very true that I drink very little of any liquid at table; but I never tasted a bad taste, and I do not believe a word of the smell. People have spoken of the water containing flocculent matters, sometimes darkish, and sometimes containing something like filaments of cotton. I never observed it at my house, and never smelt a bad smell.

3491. (*Mr. Mason.*) Did you filter it?—I never did. Another remark is this: I have the following extract from a description of the Thames water here:—"The water itself is "fœtid, turbid, and filthy, the fœtid mud steaming under the sun at either side. The "inquirer would find that for generations the various refuse and offal of the mighty city "had been cast into the stream to be borne up and down with every tide, sinking into and "saturating the soil of its bed, sending forth poisonous exhalations, poisoning the popula-"tion." I allude to the Thames, and I merely allude to it in this way: I know, from practical experience, that the merchant vessels which leave England derive almost all their water from the Thames. I know that they take it distant voyages. I know also that the sailors tell you that the Thames water stinks three times, and purifies itself. Now, this being the case—and I maintain it to be so, having been in vessels with it, and having found that no one who took that water seemed to suffer not only from cholera, but from either diarrhœa or dysentery—I think that a great deal too much blame has been attached to the Whittle Dean company; though I think in the hot weather their water has sometimes been shockingly bad in appearance. I have no connexion at all with them at present.

3492. (*Mr. Simon.*) You have adduced the case of the Thames, and your argument, if we understand it rightly, was that, if these conditions of rivers were unwholesome, the inhabitants of London ought to suffer?—Yes.

3493. Are you aware of the degree in which those districts of London which are most exposed to the influence of the Thames have suffered from cholera?—I do not pretend to be aware.

3494. Do you know on the south side of the Thames, where there is extensive soakage of the Thames into the soil, what the mortality from cholera was?—I cannot tell you the mortality from cholera. All I can say is that it has not been the mortality of Newcastle, London being twenty times the size of Newcastle, and that therefore that is not the influence.

3495. Your second point was the consumption of Thames water for drinking at sea?—Yes; that water is shipped to-day, and they go to sea for six months. It stinks three times; what water are they drinking all that time?—I have been myself at sea three months in a vessel sailing from London, and know that they have drunk nothing else. It is not agreeable, but if it stinks three times, they must drink it during the once, twice, or thrice, because they have nothing else.

3496. (*Chairman.*) Then do you wish us to infer that you have arrived at the conclusion that the drinking of stinking water is not prejudicial to health?—Of course I arrive at the conclusion that bad water is very bad for the health. All I conclude is this, that it does not produce cholera—cholera being a poison of which we know nothing.

3497. Do you think it produces fever?—I think it does.

3498. Do you think, with reference to the high rates of mortality, that it might have an influence in swelling them?—Possibly it might.

3499. Have you any opinion to offer as to the gas?—I should say the gas was not so brilliant or so pure as it should be.

3500. Can you trace to the impurity of it, more or less, any effect upon the public health?—I cannot say that I do. I should think it might have an effect; although some medical men probably think that sulphurous acid as well as muriatic acid gases are disinfectives. At the same time I should question whether the air was contaminated so much with it as you suggest.

3501. (*The Clerk to the Board of Guardians.*) Do you think that the sanitary condition of the town had no material influence upon the mortality in the late epidemic—I do not

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say so; I only say that the sanitary condition of the town did not produce cholera; having seen it occur in localities as perfect as any locality could be.

3502. Have you any opinion upon that point as to sanitary condition affecting materially the amount of mortality.—I should think it did very materially; because people who live in an insalubrious neighbourhood are generally of the same character, and are more rapidly affected.

3503. (*Mr. Bateman.*) But not as producing cholera you think?—No.

3504. (*Chairman.*) As aggravating it?—Yes.

3505. (*Dr. Robinson.*) Predisposing to it?—Yes.

3506. (*Chairman.*) Have you any opinion to offer with reference to the conduct of the Board of Health officers during their stay here?—I cannot say that I came in contact with them, except in one instance, and that was with Mr. Grainger. I understood that he was very anxious to ascertain the first outbreak of the cholera, and a friend of mine suggested that, having seen some cases, it would be matter of some interest to Mr. Grainger if I gave him an account of them. I called upon Mr. Grainger, and I have this to say, that I found him an extremely gentlemanly, amiable, pains-taking man. I think I had the honour of conversing with him on many points, probably for an hour; he also accompanied me through various parts of the town; and I showed him two cases of cholera then in a state of collapse; one was at the third door from my own house, and the other in the immediate neighbourhood of my own house. As far as he was concerned, I have every reason to think him a very amiable pains-taking man. As to the others, I can only judge from their acts, which seem to have been active and judicious.

3507. Your opinion is rather favourable than otherwise?—I have nothing to object to any amount. I think the medical men might have been consulted certainly; but that was a matter of opinion.

3508. (*Dr. Robinson.*) Are a you member of the sanitary committee of the town council?—Yes.

3509. You have had experience, I think, in Egypt, and perhaps in other countries as an army surgeon, as well as in matters affecting the health of towns. In the course of your experience, have you had illustrations of the connection between impure water and dysentery, or diarrhœa?—I cannot say I ever saw what I call bad water produce dysentery. I have seen a great deal of dysentery, but I confess I could not trace it to the use of bad water; but I have no doubt that the use of bad water may produce dysentery though it will not produce cholera. With regard to dysentery, I have no doubt of it; but I think cholera just as much a poison as small-pox or scarlatina.

3510. Are you not of opinion that any circumstances which would produce irritation of the bowels, would operate as a probable predisposing cause to cholera?—Possibly they might; but I by no means take it for granted, because many medical men of high standing have given the most drastic purgatives in cholera cases, such as croton oil, and, according to their own showing, the success was very considerable. I have seen some attacks of dysentery cured by a most violent purgative, when nothing else availed. With regard to the bad water, no one has a greater abhorrence of it than I have myself, though I do not see the effects of it. I think if a town pay for water, they are entitled to have it not only good but pleasant to the eye.

3511. (*Mr. Simon.*) As you are a member of the sanitary committee of the town council, may I ask you whether you have any cognizance of that 109th clause of the local Act of 1846 ever having been enforced during the last seven years; that is to say, before the autumn of last year (*handing the Act to the Witness*)?—I cannot say it of my own knowledge. I have been only a few months a member of the sanitary committee. I can only say that the sanitary committee meets every fortnight, and seems to be incurring a very great expense for sanitary purposes.

3512. (*Mr. Town Clerk.*) I do not think that I need ask anything of you; I see that you feel indignant and mortified, as many of us do, at hearing so bad an account of ourselves. Indeed one feels quite satisfied to think that we are all alive after hearing the statements which we have heard. You are not a native of the town?—No.

3513. Therefore may I ask you a question which I could scarcely ask of a native of the town. Do you perceive that the natives of Newcastle, who are born and brought up in the air which we have heard described, are inferior in strength, in sinew and in bone, or inferior in stature, to the natives of the more southern parts of England?—I should say quite the contrary. I think the Newcastle mechanics a very different race from those of Manchester and Birmingham certainly.

(*Mr. Mason.*) With reference to the observations which Mr. Gregson has made, that the inquiry has not been impartially conducted, I have watched it with the utmost attention, and I must say that it has been quite the contrary; and I am sure that every individual around will say the same.

(*Mr. Gregson.*) I impute nothing to the gentlemen conducting the inquiry, for whom I have the very highest respect, from their manner and their method. I merely assume this. I have seen, in a French court of law, that the criminal was always supposed guilty, and the examination made him prove himself so. I attribute nothing to the Commissioners, but it seems an assumed fact that Newcastle is guilty, and that they are sitting in judgment upon that supposition, and not in accordance with the English plan of assuming that she may be innocent.

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3514. (*Mr. Simon.*) I may mention that, before commencing our inquiries here, we looked at some of the districts of the town, and got a general impression of them for ourselves. That may account for the manner in which we have asked the questions, which, perhaps, have appeared to you to be leading questions?—All I meant to say was, that, by the same course of evidence I could convict any town, probably in three parts of the world in which I have been.

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3515. (*Chairman.*) You are assistant surgeon of the 6th Infantry, are you not?—Yes.
3516. That regiment was in barracks in this town during the recent epidemic?—Yes.
3517. In the course of the summer you became aware that there would, very possibly, be an outbreak of cholera in the autumn?—I did not expect nor hear of it till it had been in the town some few days. I had been on the sick list.
3518. I believe there was a cavalry corps in barracks at the same time?—A squadron of cavalry—6th Dragoons.
3519. I believe, in conjunction with Mr. Boate, assistant surgeon to the 6th Dragoons, you drew up and signed this letter to Dr. Andrew Smith, director general of the army medical department?—Yes.
3520. Do you put this letter in as part of your evidence?—Yes.

The following is the letter in question.

Newcastle-on-Tyne, 18th October 1853.

Sir,—In accordance with the request contained in your letter of the 15th instant, we have now the honour to transmit in duplicate for the information of Mr. Grainger, Superintending Inspector of the Board of Health, the following particulars regarding the fatal outbreak of cholera in this town, in relation to the troops, &c., composing the garrison, and a detail of the precautionary measures adopted in and out of the barracks, with a view, if possible, to avert the threatened evil, and which, under Providence, have been attended with such beneficial results as to procure for us a complete immunity from the disease in its developed form. Everywhere around us the devouring plague has left its fatal impress, yet have we been hitherto most mercifully spared. Numerous cases have occurred in our immediate neighbourhood; and in some of the houses, in which the soldiers' families are accommodated, several deaths have taken place among the civil population. These are situated at distances varying from 50 to 200 yards from the barrack gate. In the village of Spital Tongues, about 250 yards to the north of the barrack, the disease prevailed to a frightful extent for many days, and carried woe and desolation to almost every hearth—scarcely a cottage escaping without numbering one or more victims to the merciless grasp of the destroyer.

The barracks are situated about three quarters of a mile from the centre of the town, and form part of the outskirts in a north westerly direction.

Immediately on ascertaining that the fatal scourge was abroad in our streets, we became impressed with a sense of fearful responsibility, as, intrusted with the care of so many lives, we reflected on our means of defence against its ravages. Bearing in mind the trite well known adage that "prevention is better than cure," we augured that by strict attention to cleanliness, ventilation, and diet, with a careful watching for and prompt treatment of premonitory symptoms, and by forbidding the troops from going into infected localities, the pestilence might, perchance, to a certain extent, be happily averted. Accordingly, aided by the ready co-operation of Major White, 6th Dragoons; Major Fraser, 6th Foot; and Captain Rutherford, Barrack Master, the following sanitary precautions were instantly taken, and are still being continued with unremitting assiduity.

We made a minute and thorough inspection of all drains, sewers, privies, ashpits, and every other locality both within and without the barracks where filth was likely to accumulate; had all offensive matters removed, and effluvia corrected by the liberal and daily distribution of chloride of lime. The privies and ashpits were whitewashed. The custom of washing out the barrack rooms, at our suggestion, was discontinued, and dry rubbing substituted. Since the commencement of the epidemic the troops have been medically inspected twice, and the women and children once daily. The provisions have been carefully examined—the mode of cooking the dinners varied occasionally from boiled to roast, or baked meat—the men strictly enjoined to apply immediately on the approach of any diarrhœal tendency, and the sergeants ordered to keep a careful watch, and to send any person to hospital who may be detected going more frequently than once a day to the privy. All hawkers of fish, fruit, or vegetables, have been forbidden entry into the barracks, and the men cautioned to abstain from any irritating diet, and to keep from all the low and filthy parts of the town, as well as from situations where the cholera may be raging; they have also been confined strictly to barracks after evening roll call—flannel belts have been taken into wear—at our request, an extra allowance of fuel granted—amusements in the vicinity of the barracks encouraged—and every endeavour made to procure from the troops a cheerful and ready compliance with our requirements, without inspiring fear.

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The families of such soldiers as were married without leave, not being accommodated in barracks, have been daily visited at their lodgings, and every means put in practice to enforce and maintain suitable degrees of cleanliness and ventilation; the landlords applied to, whenever necessary, for the removal of nuisances, and lime occasionally issued for disinfecting purposes. In some instances, families who had taken up their abode in situations which seemed to us highly objectionable, either as being overcrowded or as teeming with noisome effluvia, were advised to leave, and better apartments procured for them. The miserable condition of many of these poor creatures has been ameliorated by the timely aid of a few friends, to whom their distress was represented, and owing, no doubt, to the change thus effected, their health has been in a great measure preserved during this trying visitation.

Having given in detail the several prophylactic measures had recourse to, we come now to particularize the results of the epidemic influence among our small community, armed thus *cap-à-pie* for the encounter, and, thank God! they have been such as our most sanguine expectations could never have anticipated. We beg to subjoin a synoptical view of the strength of the garrison, with the number attacked with premonitory diarrhœa, &c.:

STRENGTH OF THE GARRISON IN BARRACKS, &c.

Corps, &c.	Officers.	Men.	Women.	Children.	Total.	Cases of Diarrhœa.					Cases of Dysentery.					Cases of Cholera.					No. of Deaths.
						Officers.	Men.	Women.	Children.	Total.	Officers.	Men.	Women.	Children.	Total.	Officers.	Men.	Women.	Children.	Total.	
6th Dragoons -	4	82	11	21	118	3	168	4	–	175	–	–	–	–	–	–	–	–	–	–	–
6th Foot -	10	304	29	46	389	3	252	9	11	275	–	6	–	2	8	–	–	–	–	–	–
Staff - - -	–	5	4	3	12	–	1	–	–	1	–	1	–	–	1	–	–	–	–	–	–
Total -	14	391	44	70	519	6	421	13	11	451	–	7	–	2	9	–	–	–	–	–	–

STATE OUTSIDE THE BARRACKS.

6th Dragoons -	–	–	9	14	23	–	–	3	–	3	–	–	–	–	–	–	–	–	–	–	–
6th Foot -	1	–	33	47	81	–	–	13	13	26	–	–	1	1	2	–	–	–	1	1	–
Staff - - -	2	–	1	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Outside the Barracks -	3	–	43	61	107	–	–	16	13	29	–	–	1	1	2	–	–	–	1	1	–
Total within Barracks - -	14	391	44	70	519	6	421	13	11	451	–	7	–	2	9	–	–	–	–	–	–
General Total -	17	391	87	131	626	6	421	29	24	480	–	7	1	3	11	–	–	–	1	1	–

From the foregoing statement we may fairly infer, although, with divine assistance, no case of actual cholera occurred within the barracks, that without the extreme vigilance and unremitting care bestowed, we should not so entirely have escaped its direful ravages. The cases of diarrhœa, by prompt treatment, have been mostly of an ephemeral character, the patients being restored to health on the day following that of the attack, and able to resume their accustomed avocations. Many of them came under observation twice or thrice, at varying intervals of time, suffering from a return of the disease, which accounts for the apparent large average attacked. In a few instances the affection was more protracted in the cure, and was attended with vomiting and griping pains in the abdomen. The cases of dysentery have been severe, but have all recovered satisfactorily. We may here state the extraordinary tolerance of the system for opium we have remarked in our treatment, three or four grains having only the effect of grain doses administered at other times.

In conclusion, we beg to observe that, in order to carry out the duties effectively, we so arranged that the garrison should never be left without a medical officer—the night duties were taken alternately.

The plague of flies, supposed by many to have some remote connexion with the epidemic, has visited us on many occasions.

We have the honour to be, Sir,
Your most obedient servants,

(Signed) WILLIAM F. T. IVEY, Assistant-Surgeon 6th Royal Regt., Senior Medical Officer.
HENRY CHARLES BOATE, Assistant-Surgeon 6th Dragoons.

3521. The strength of the garrison, I believe, was altogether 519 people within walls, and 107 without?—Yes.

3522. Among whom there occurred 451 cases of diarrhœa within, and 29 without?—That is the aggregate number.

3523. (*Mr. Town Clerk.*) It did not affect 451 individuals and 29 individuals?—No; it was the aggregate number of cases. I cannot say to 10 or 11 over or under.

3524. (*Chairman.*) But as nearly as you can estimate?—As nearly as we can estimate that is a correct statement.

3525. Did you form any opinion as to whether, without any precautionary measures having been adopted, any of these many cases of diarrhœa would have passed on into cholera or collapse?—I think it is only a fair inference to suppose so.

3526. (*Mr. Simon.*) When did the precautionary measures mentioned in this letter commence?—I should say about the 7th or 8th of September, to the best of my recollection.

3527. How long did it take to get your measures carried into effect?—Almost immediately. The measures were put in execution immediately they were proposed.

3528. Had there been diarrhœa in the establishment before the commencement of these improvements?—No, I think not, to the best of my recollection. There may have been a case or two in August, but nothing of any consequence.

3529. Would it be your impression that the influence, whatever it may be, of the epidemic disease had not reached your district before that period?—I think not.

3530. Did the cases of diarrhœa occur pretty nearly all at the same time?—No; they did not. They commenced about the 10th or 11th of September, I should say, and continued increasing.

3531. Till what time?—Till the end of the month; in fact it went on in October also. The numbers began to decrease, I should say, about the 14th or 15th of October. I speak merely from recollection.

3532. And your sanitary regulations were enforced from about the 9th or 10th of September?—I think about the 9th or 10th, or it may have been a day or two previous.

3533. (*Chairman.*) The precautionary measures which you adopted were cleanliness, disinfecting fluids, a due regard to ventilation, diet, and avoidance of infected districts?—Yes, and avoidance of damp also.

3534. It is here stated that among 519 people within the walls of the garrison you had 451 cases of diarrhœa, which is almost nine cases among ten people, and that outside the walls of the garrison among 107 people, you had but 27 cases of diarrhœa, or only one case in four people?—Yes.

3535. To what do you attribute the lightness, so to say, of the diarrhœa without the barracks, as compared with the severity within?—I have not formed any opinion on the subject.

3536. (*Mr. Simon.*) None of those cases of diarrhœa passed on into cholera. What opinion have you formed on that subject?—I think it is likely that some of the cases, no doubt, would have passed on into cholera but for the measures adopted, and the vigilance used.

3537. There is another point here which is only perhaps a point of medical curiosity, but we should be very glad to have your explanation of it. We find that there was a difference between the cavalry and the infantry as regarded the prevalence of diarrhœa, so that the attacks of diarrhœa among the cavalry averaged more than two attacks to each man, while, in the infantry, they averaged less than one attack to each man?—I think the cavalry soldier is more exposed to alternations of temperature than the infantry soldier. He is at work in the stables for many hours and gets heated there. The stables are very close and confined, and he then goes into the open air, and perhaps as the stable work is dry work, he drinks cold water while in a heated state, and I believe that very likely would cause the difference.

3538. He has considerably more labour?—I should say so.

3539. More fatigue, and that fatigue takes place you say in an ill-ventilated atmosphere?—Yes.

3540. And in an atmosphere which contains, I suppose, the effluvia from the dung, &c., of the horses?—Yes.

3541. Was there any difference in the house-accommodation of these two classes of soldiers? Were they lodged in the same way?—Quite alike, with this exception, that about sixty-three men of the 6th Foot were accommodated in the magazine barrack, which is not in the vicinity of the stables.

3542. On the same level?—Yes; in fact, intermixed, you may say. I should not say exactly intermixed; but some of the cavalry were accommodated in the infantry part of the barracks.

3542A. (*Chairman.*) And they were dieted and treated alike?—Yes, exactly.

3543. (*Mr. Simon.*) It is not the case, is it, that the cavalry exclusively sleep over their stables?—Yes, they sleep over their stables, and so do many of the infantry soldiers.

3544. (*Chairman.*) What is the quality of the water in the barracks?—It is generally considered good.

3545. Where do you get it from?—It is obtained from wells within the barracks.

3546. More than one?—Two; one supplying the barracks, and the other the hospital.

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3547. You think that infantry and cavalry were supplied from the same wells?—Yes.

3548. With no distinction of quality?—No distinction; there is only one well.

3549. Do you know what the quality of the water was, which was used outside the barracks among the families of the soldiers?—No.

3550. Have you never formed any opinion as to that extraordinary difference to which I alluded, viz., that there should be nine cases for every ten men within barracks, and only one for every four of the women and children without?—I have not; except that the extra vigilance used within may have detected diarrhœa more than outside. They may have had diarrhœa outside, without its being detected; but inside we had a strict watch over the men.

3551. You would expect more attacks among women and children than among able-bodied men?—Yes, but many of those attacks were so slight as scarcely to come under the denomination of diarrhœa.

3552. (*Mr. Simon.*) You entered every case of loose motion?—Every case applying for relief.

3553. Every case in which any one of your men suffered from a second motion in the course of the twenty-four hours?—Yes, any man, woman, or child who applied for relief was put down.

3554. If I understand your report rightly, you set a sentry at the privy so as to notice all persons who resorted there?—There was not a sentry constantly there, but merely observations were made from time to time by non-commissioned officers.

3555. (*Chairman.*) Then in fact the disproportion between the attacks outside and inside the barrack walls may not perhaps really have been so great as it appears?—No, it would not.

3556. Is the state of the barracks generally satisfactory in a sanitary point of view?—Generally so. The privies are defective. There is no drainage to any of the privies.

3557. (*Mr. Simon.*) There are cesspools?—Yes.

3558. At a considerable distance, if I recollect rightly, from the lodging places?—Yes, they are.

3559. Are the privies supplied with water?—No, they are not.

3560. Do you know a group of cottages—a sort of colliery village—at a small distance from the barracks, called Spital Tongues?—Yes.

3561. Do you know that there, in a population of about 500, there died twenty-eight persons? Do you know that there was a considerable mortality there?—Yes, I am aware of that.

3562. Do you happen to have heard to-day the description given of the property there?—Yes.

3563. Of the accumulation of filth there?—Yes.

3564. Do you think that if in that locality there had been equal attention to cleanliness and to premonitory symptoms among the population, which was about equal to your own, the mortality might have been reduced?—I should think, if they could have been placed under similar circumstances, it might have been to a great extent.

3565. As to cleanliness, do you mean?—As to cleanliness, and ventilation, and diet.

3565a. (*Mr. Hunter.*) It is considerably lower than the barracks?—I should say not less than twenty feet.

3566. (*Chairman.*) How many feet above the Tyne is it?—100 feet.

Mr. Hunter.—I should say more than that. Spital Tongues lies quite in a swamp, surrounded by a wide ditch.

3567. (*Chairman to Mr. Ivey.*) Is there any other point on which you would wish to offer any evidence?—No.

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3568. (*Chairman.*) You are a surgeon, I believe, and a member of the town council of this borough, are you not?—I am.

3569. And have practised many years in the town?—Nearly twenty-six years; and I have been nearly two and a half years attached to a public dispensary.

3570. Which is that?—The South Shields dispensary.

3571. (*Mr. Simon.*) Had you occasion to see a number of cases of cholera during the late outbreak in this town?—A great many.

3572. In what localities chiefly?—All over the town, generally speaking.

3573. (*Chairman.*) Among all classes, or chiefly among the lower classes?—Among all classes, I think; probably the lowest classes might be more exclusively attended to by the parish surgeons.

3574. (*Mr. Simon.*) Will you mention to us the situations of three or four of the best placed houses, in what you would consider the healthest localities, in which you had cases of cholera?—There is one place I would mention, Crescent Place, near the Leazes; I consider that a very healthy place.

3575. To the north it adjoins the Leazes with nothing between it and the Leazes?—Nothing but a simple row called Crescent-terrace. I should consider it a very healthy spot from its situation.

3576. As being high placed?—Yes.

3577. Were there many cases of cholera in that locality?—Fifteen or sixteen. I only attended one.

3578. Do you happen to know how many deaths there were there?—I attended one, and that person got better; and the rest all died, I suppose.

3579. Do you happen to know anything positively with respect to the drainage of those houses?—They are all drained.

3580. Do you happen to know whether they have any privies on the premises, that are not in connexion with sewers?—They have privies attached to ash-pits, but not connected with the sewers.

3581. (*Chairman.*) When you say drained, you mean drained for surface purposes only?—Yes.

3582. Not drained for the removal of fœcal matter?—No.

3583. (*Mr. Simon.*) Are those the houses that on the whole you consider the best circumstanced houses in which you saw cholera?—No. I consider that they are new houses. The street has not been built probably more than twenty years, and consequently there ought not to be any great nuisance there; and they are within a few yards of an open place, like the Leazes, where health ought to be obtained from the situation: and I understood, when I was attending that case of an inn-keeper there, that it was the fifteenth or sixteenth case in that small place, of probably not more than twenty houses, and that out of the sixteen, fifteen died.

3584. Did you attend in only one of the houses?—I only attended one case.

3585. Do you happen to know whether there was a complaint of nuisances about there?—None whatever; there was no time to talk about nuisances.

3586. Had they water-closets in the houses besides the privies, do you know?—I should think not.

3587. (*Chairman.*) Were the privies and ash-pits well kept, as far as you know?— So far as I could see of them, but that is not a part of the house we generally visit, when we go.

3588. (*Mr. Simon.*) Can you mention any other good houses in which you saw much cholera?—I saw cases all over the town, in all the principal streets, Shield-field, New-bridge, Percy-street, Barras-bridge, Clayton-street, in all the centre streets without exception I think; of course, I am not speaking of the bad cases exclusively, I am speaking of the cholera as I generally saw it.

3589. Do you recollect any such instance as that in Crescent-place, where there were fifteen or sixteen cases, of which all but one were fatal?—I really cannot say; I did not go to seek that information; it was communicated to me, because they found that I had attended that man; I only mention it in answer to your question.

3590. You mentioned just now, in conversation, that there were some strong smells in Newgate-street, between Grainger-street and St. John's-lane?—Yes.

3591. Is that at the gulley in Newgate-street?—Just as you turn into Nun's-gate, where I live, and have often passed.

3592. At the corner of Grainger and Newgate-streets?—Yes.

3593. There is sometimes a very bad smell there; is it from the sewers?—There used to be a very bad smell.

3594. Is it the general arrangement in the houses of the middling classes here to have water closets, or to have privies?—As a general rule, I would say privies. Water closets have lately been introduced into some of the best houses, and I think they are a perfect nuisance. If there is anything calculated to produce a bad smell in a house, it is a water closet in it.

3595. You have known them, in many instances, to be offensive?—Most offensive. I should say there are many houses in Clayton-street, and Grainger-street, and Nelson-street, Nun's-street, and Clayton-street West, all newly built houses with water-closets in them; and if I had my choice, I would not live in such a house. I think that water-closets ought to be without the house, and communicating direct with the sewer.

3596. You would think it, of course, very important, if water-closets were constructed, that they should be constructed so as not to stink?—Yes I think so.

3597. Are there usually privies on the premises as well?—I should think not.

3598. (*Dr. Robinson.*) Do you know anything of the drainage of Crescent-place?—I believe there are drains from every premise leading to a sewer somewhere about St. Thomas's-crescent.

3599. (*Chairman.*) Is there any other point?—If this Commission is to answer any useful purpose, I would suggest that the Government should provide four or six individuals in the profession, and that one of them should be an able analytical chemist; another a physiologist and a good anatomist; the one to analyse the secretions and excretions of cholera patients, the other to make post mortem examinations; and also that four practical men should be retained, and that they should be sent by Government to any city or town in England where cholera breaks out. I cannot imagine but that every

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other medical practitioner, situated and circumstanced as I was myself, must have found it equally impossible to obtain any better knowledge of the disease. When an epidemic reigns in a town, as cholera reigned here, it requires all one's energy, both of mind and body, to attend to the practical duties of relieving the sick. I must say that from my experience of the previous epidemics, I did anticipate that I might have been able to make something of it; but, so far as I was personally concerned, I could neither get sleep, nor scarcely time to eat my food; and I think that Government ought to step in, now that this disease is likely to take a permanent hold of the kingdom; and that it would be well and wise if a board was appointed, consisting of four or six individuals who should be practical men, to attend to the disease.

3600. (*Mr. Simon.*) Do you mean for the purpose of treating the disease?—To treat the disease; that they should step in and assist the resident practitioners of any town where cholera broke out.

3601. You are aware, are you not, that Government has, to a certain extent, endeavoured to found what you mention? You know, for instance, the constitution of the Board of Health, and the duties of its superintending inspectors; and the inquiries that have been made, under direction of the board, into the generation of cholera, and of the results of those inquiries, which it has published?—I am aware what the Board of Health in London has done; but I beg to say this, as far as I can form an opinion, that in its application to this town it was of no benefit. I heard Mr. Grainger give some portion of his evidence; and if a medical inspector of the Board of Health is sent down from London, and he comes, and only consults portions of the medical profession because he meets with difficulties, I say that that is not at all calculated to do good. I think that the duty of Mr. Grainger, as an inspector, was to come here and meet the whole profession. He had no business to hear parties either on one side or the other. His business was to meet the whole profession. I think Mr. Grainger, Dr. Gavin, or any body else, should have entered the town and called the whole profession together; and I think it should be made a rule that the profession of a whole town ought to be called together by these gentlemen. They ought to listen to no parties, and no schools, or anything else. Whether the Board of Health instructs its agents to go on in that sort of way I do not know, and I leave the parties to say; but I think we should have done better if we had been left to ourselves,—infinitely so.

3602. (*Dr. Robinson.*) You saw the epidemic of 1831, and you saw the epidemic of 1853. On the whole, without bringing any charge against any party, do you think that the arrangements of 1831, or the arrangements of 1853, were best calculated to diminish the mortality?—I distinctly state that the management of 1831 and 1832 was infinitely superior to that during the past outbreak.

3603. (*Mr. Simon.*) Were there any arrangements adopted in 1831 for treating the early stages of cholera—for treating its premonitory diarrhœa?—I beg to state that I believe that system originated with a gentleman with whom I then acted very extensively as regards the cholera. That was Mr. Frost. I believe the first idea that cholera was preceded by a diarrhœa emanated from ourselves; whether it was mine or Mr. Frost's, I will not say. That was in 1831. And as a confirmation of that fact, I may mention that an individual from Greenock, a Dr. Kirk, came here; and, after getting that information, he thought it was so important that he actually went round the whole profession, and got them to give a certificate to the effect that they had noticed it; and then he passed it off that he had made a great discovery.

3604. (*Chairman.*) Is there any other point?—I beg to say that there is one fact connected with the returns of the cholera in which I think a gross delusion was practised upon the public.

3605. Which returns do you allude to, the mortality returns?—No, I do not dispute the mortality returns; but I say that certain agents, or parties sent down here, made a return of so many deaths and so many cases. The fact is, that the deaths were unquestionable; they were returned by the registrars; but there was only a small proportion of the cases returned by the parties. I really cannot state exactly my own number of cases; but when I state to you that they never got a return of a single case which I had, I consider that it gave an appearance, at a distance, as though there was either bad management or no management at all of the disease; and that there were so many people allowed to die out of so many hundred cases.

3606. Am I to understand you to say that the number of cases was understated?—Decidedly so; I mean to say that there should have been a thousand more, even from my own practice, of one kind and another.

3607. The statement, that we had, amounted, as far as I recollect, to this, that there were 45,000 cases (among the poorer classes chiefly, of course,) treated through the officers of the board of guardians, or those employed at that time by the town council. Do you think that 45,000 cases treated, representing perhaps 10,000 or 15,000 persons among the poorer classes, was an understatement?—I mean to say this, that if they said there were 45,000 cases, and so many deaths, we will say 1,500 deaths, twenty-nine of those deaths occurred among my own cases; but they did not put down some 1,000 cases of all sorts that ought to have been put against those 29 deaths.

3608. You say, in fact, that the number of cases was understated?—They put in all the deaths, but did not make a full return of all the cases. There is another fact which I would state, as against the management during the past outbreak. They excited a tremendous panic in the public mind; they caused numbers of persons to be constantly applying to the medical men in the town; and of course, by all these applications, where there was no necessity for calling the attention of a medical man to the parties, the cases being such as under ordinary circumstances no person would think of complaining of, attention was taken off the real cases of cholera or choleraic diarrhœa, to which the medical attendant ought to have been specially confined.

3609. Which of the arrangements do you allude to? to the house-to-house visitation? —I do; I know that in parts of the town which I went into, individuals complained of the annoyance, that men were every day walking into their houses, and asking them if they were bad in their bowels. It became offensive to many people, and they complained to myself of it.

3610. (*Mr. Town Clerk.*) They were offended at the too great anxiety about their health?—Yes.

3611. (*Mr. Simon.*) Still you do not doubt that it is very important to discover the beginning of diarrhœa, where cholera is epidemic in a district?—Decidedly so; I think that in the great majority of cases life might be saved by it.

3612. (*Chairman.*) What variation of the arrangements made by the Board of Health officers would you have suggested?—I say that they should have immediately called the whole profession together; and as soon as they had got the profession together, they should have associated with the profession the leading scientific and respectable individuals, who might have time to devote to the object of carrying out detailed arrangements. That was done in 1830 and 1831; I had the honour of being a member of that board as one of the profession, and it worked admirably. A visitation took place generally, throughout the parishes, but it was only the churchwardens and overseers and a few respectable inhabitants of each parish that went round from time to time, and where they found destitution, I believe, they relieved it by subscriptions that were raised from a benevolent fund.

3613. Then the house-to-house visitation, as carried out by the churchwardens and overseers and principal inhabitants in 1831–32, was in your opinion a more satisfactory system than that of conducting it by medical students brought from a distance, and strangers, in 1853?—Decidedly so; one goes to seek cases, and the other provides against the appearance of cases.

3614. (*Mr. Simon.*) In respect of the prevention of cholera by prompt attention to its premonitory diarrhœa having originated in this town, have you stated all that you know about it?—I beg to say distinctly, that it emanated from, and was assumed as an important fact by Mr. Frost and myself. I should state that Mr. Frost and myself acted in conjunction in the cholera cases in different parts of the town. From the manner in which Mr. Frost and myself were constantly associated day by day, it led to a good deal of communication between us about the disease, and we generally exchanged any new ideas that occurred to us. Of course I do not claim it for myself, but I claim it for us both; and it is a practical fact that it did emanate from us; and Dr. Kirk got the whole profession to write certificates to the effect, that it was a fact which they had noticed.

3615. (*Chairman.*) Do you refer to Mr. Samuel Merryne Frost?—Yes.

3616. (*Mr. Simon.*) How far did your observations at that period extend; that cholera was generally preceded by a diarrhœa?—Yes.

3617. And that if you stopped that diarrhœa, you succeeded in preventing the disease? —We at that time were certain, that if we saw a case in the stage of diarrhœa, we could absolutely prevent collapse; subsequent experience has rather caused us to modify that opinion.

3618. And at that time you had no knowledge of similar observations having been made by any other persons?—I never heard it; and I believe when it was mentioned to Dr. Duff and Dr. Barry, medical men sent down from London, they appropriated the fact; and I believe it was reported to the central Board of Health, or somewhere.

3619. Did you put anything into print at that time;—No, I had not time; I intended to do so.

3620. (*To Dr. Robinson.*) Have you, or has any other member of the profession anything to say upon the subject of Mr. Clark's remarks, claiming for this town and for himself and for Mr. Frost, in particular, the first developement of the system of the preventive treatment of cholera?—I have looked over some of the papers published in 1831 and 1832, and I find that public attention in this place was expressly directed to the fact that cholera was preceded by diarrhœa.

3621. (*Mr. Town Clerk to Mr. Clark.*) Both you and I had some experience of the cholera of 1831; can you account for the slightness of the attack of cholera in Newcastle in 1849, or for its virulence in 1831 and 1853?—There are many causes that might be ascribed as predisposing causes; for instance, I would mention a fact to which I think little attention has been called, so far as I have heard the examination of any medical man, and that is, that dysentery prevailed extensively for a month or six weeks previous to the outbreak of cholera in July and August, 1853. The water that was supplied to the town I considered in a very bad state. It was thick, muddy, and decidedly not

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water that ought to have been supplied. I am speaking now of the state of the town previous to the outbreak of cholera, but I do not think the bad water by itself would have occasioned this dysentery. I think that requires extreme heat. Now, we had an extremely damp spring at the commencement of the year, and up to May and June there was an immense fall of rain; never, probably, was so much experienced in this town for years. The consequence was that it rapidly disappeared, and cleansed the town. The sewers and drains, I should think, as a natural consequence, must have been in a better state than ever before. But the supply of water, (I saw the water, and had to drink it myself usually,) was very thick and muddy. Now, I think, as soon as the hot months of July and August set in, dysentery followed as a matter of course, and it spread rapidly, and there was an immense quantity of it. There was also another fact which I think escaped public attention, and that was the immense importation of unripe fruit from Hamburgh. I dare say every person present will be aware of the immense quantity of plums, cherries, pears, and apples that was imported into this town through the Hamburgh steam-boats. This fruit was in a most imperfect condition for human food, but it is well known that if you offer for sale articles of any kind, even fruit and provisions, cheaper than they may be generally obtained, there is an immense demand immediately by the lowest classes, and I believe there was an immense quantity of this improper fruit consumed.

3622. (*Mr. Simon.*) Unripe or damaged?—I made some inquiries. I went to a party that had come from Hamburgh, and knew the system. This fruit is put into ovens (I suppose in Hamburgh) in an unripe state; it is heated up by artificial heat, and brought here, and if not sold and consumed within two or three days, there is perfect rottenness. I have examined a great quantity of the fruit—pears especially. I consider that the consumption of this fruit was a leading cause, together with the bad water and heat, of the prevalence of dysentery. It is well known that dysentery is allied to cholera, and I think that the epidemic coming immediately upon this prevalence of dysentery in the town, made us suffer so immensely as we did.

3623. Is any control exercised here over the sale of such fruit as you mention?—If it is known, it is destroyed.

3624. Was this importation of fruit to the extent of several ship loads?—Yes, boat loads two or three times a week. I do not mean to say that all the fruit was bad; but there was an immense proportion of it bad. It went by the railway to Glasgow, a great quantity of it.

3625. You spoke of the water being bad; now, by "bad," do you mean anything more than that it was thick?—I mean to state that it was muddy and thick, and not presenting an appearance to tempt people to drink it very freely; and, I believe, when water is not presented in a state to gratify the taste, it tempts and leads people on to take drink, stronger drinks; and I believe that the intemperate habits which might be induced from that circumstance, might tend to predispose the human constitution to suffer and fall under the influence of epidemic disease.

3626. Have you any reason to believe, from your own observation, that the water had any offensive impregnation with animal or vegetable matter?—I should not say so. I drank it very freely.

3627. And you found in it no offensive taste?—No offensive taste.

3628. And no offensive smell?—No offensive smell; it was merely thick.

3629. (*Dr. Richardson.*) What do you suppose the muddiness arose from?—I should think a good deal from clay; and it might be stained by the soil that the water came from.

3630. Have you a tank on your premises?—No.

3631. You had it direct from the main?—Yes.

3632. It was not a local disturbance from the repair of the pipes?—No, it continued from day to day.

3633. (*Chairman.*) Muddy and discoloured?—Muddy and discoloured, leaving a very considerable quantity of deposit in a glass of water.

3634. (*Dr. Richardson.*) Clay would not produce diarrhœa?—It might possibly; but it would not account for the immense quantity. I say that when you have this associated with water, it will very frequently produce deleterious effects upon the human body.

3635. (*Mr. Simon.*) Do you think that this water produced any purging?—I would not say that the water itself did.

3636. Any looseness of bowels?—We always have bowel complaints and cholera in the summer.

3637. (*Mr. Town Clerk.*) From your observation would you say that the town had advanced or receded in cleanliness since 1849?—I should think it had advanced. It has wider streets, and is better paved and better flagged, and improvements are extending.

3638. And more sewers made?—More sewers made.

3639. (*Mr. Simon.*) When you speak of the streets being wider, do you allude to new streets?—I allude to all the streets. The fact is, this town has been peculiarly circumstanced. It was a walled town, and the town necessarily was filled and occupied with very narrow streets. The greatest use had to be made of the land, and necessarily the

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houses in some places were very close together. It is not, probably, much in the memory of the present generation, but it was notorious that the tops of these houses met together in many places. Now the authorities have, from my earliest recollections, been vastly improving the town in that respect. The old property is from time to time pulled down, and, whenever it is practicable, streets are widened and enlarged; and I should imagine that this feeling is extending, and extending very largely; and I think that a local Act which they have got, which has given them compulsory powers, will lead to even further and better arrangements; it may be more systematized. But I should state the difficulty which the authorities labour under to render the old portion of the town so healthful as it might be, and as it will be, I have no doubt, in time. It is a very singular fact that in the most confined parts of the town, and those which are generally deemed the most unhealthy, I should almost say you can find the oldest people; and that there is one portion of the town, called Sandgate, where I believe there was one of the finest races of men, which is now almost becoming extinct, that is, the Keel men; where you would have found the strongest and most bulky and muscular men that you could probably find in the kingdom. They had all the size and and appearance of a London bargeman with a very different state of constitution.

3640. (*Dr. Robinson.*) Alluding to the comparative healthiness of the town now and at former periods, I think formerly there were open spaces which are now built upon?—There were.

3641. The property upon which Grey Street and many of the new streets now stand?—I lived close to it, and was constantly, as a boy, playing in the field.

3642. Do you think that the fact of those once vacant spaces in the centre of the town being now occupied by buildings diminishes the healthiness of it?—I certainly think it must partly affect the health, if sufficient spaces are not obtained as you go on; but as the town extends, our churchyards are going to be closed, and they will make a certain area of space that will be left open.

3643. They are not very extensive nor very healthy, are they?—They are not very small. Squares are continued; the space of ground on which Eldon Square and Blackett Street now stand, was actually one of the greatest nuisances in Newcastle. I believe the corporation of the day kept their middens in Blackett Street, and it was a mass of middens from the old gaol to Pilgrim Street. That was completely removed, and instead of this nuisance of animal and vegetable matter, it is now covered by the good houses, one of which you live in, I believe, in Eldon Square.

3644. (*Mr. Simon.*) In the older parts of the town, such as Sandgate, and the quay side, and Pandon, and Castle Garth, and the Close, and all those older parts of the town, have you noticed any improvement within the last five or six years?—Considerably so. The quay side and Pandon was densely inhabited; now it has almost become emptied. There may be a good many inhabitants there; there may be still some, but nothing to what there used to be. In Pandon, for instance, it was looked upon as the most deplorable part of the town. You may pass along, and scarcely see a human being; it used to be filled and crowded from one end to the other.

3645. (*Mr. Town Clerk.*) The houses are turned into warehouses?—Yes, and a good deal of the property, I believe, is not occupied at all. It is retained for improvements.

3646. (*Mr. Simon.*) Do you know the population there accurately; for we have it in evidence from the parochial surgeon that there is a good deal of population there?—I could not state it. The population of these places was, and I dare say, still continues, of a migratory character; and you may have in certain months thousands, and a few weeks after only hundreds. It is constantly changing, and that is probably one evil as respects the health of these districts, that they are occupied by numbers of people half starved, and eating improper articles of food, and of course they cannot be in an excellent state of health, when they are in that state of poverty.

3647. (*Mr. Town Clerk.*) Are they chiefly natives of the town?—No, I should think all those places are now filled by a migratory population.

3648. What we call trampers?—Tramps of all classes, all the lowest classes, that probably cannot get admittance into any other property.

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3649. (*Chairman.*) I believe you are a surgeon in this town?—I am.

3650. And have practised here for many years?—Yes, upwards of thirty years.

3651. You must remember the cholera of 1831?—I do.

3652. Are you pretty accurately informed of the general state of the town in 1853 as compared with what it was in 1831?—Yes, I think I am.

3653. What is your opinion of the general sanitary state of the town in 1853?—I think, upon the whole, it has improved to what it was in 1831.

3654. In any particular points?—No, not in particular. In a general way.

3655. Would that improvement extend itself over all parts of the town equally, or would it be an improvement chiefly in certain localities, as by the building of Grainger Street and Market Street, and those places there?—Particularly in that respect; but I think generally the state of the town is improved to what it was in 1831.

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3656. As regards the poorer districts, of which we have heard a good deal, Sandgate and Pandon, and so on, do you think there has been any improvement there since 1831?—I do.

3657. In any particular respects?—I think they are by no means in such a bad state generally as they were in 1831. I had a good deal to do with the cholera in that district in 1831. Certainly, I had not so much in the recent epidemic, but I was frequently in that locality.

3658. Do you know whether any house-drains have been introduced, say into Sandgate or into Pandon, for the removal of fœcal matters?—I cannot speak to that point particularly; but the impression upon my mind generally is that there has been a considerable improvement in many respects, especially the lanes.

3659. Do you mean that the lanes have been improved in respect of paving?—Yes, in many respects they have, I think.

3660. In anything besides paving?—Yes, and in flagging also.

3661. Has the accommodation in the way of privies and middens, and so on, increased since 1831?—I cannot speak to that point.

3662. As to the scavenage can you speak?—I cannot, for I am not very much in that locality.

3663. Your practice has not led you much, during the late epidemic, into the lower districts of the town?—No, I have had very little to do with the lower parts.

3664. Would you offer any opinion as to the condition of the tenements in these places?—No, I cannot; for I do not think I was ever once in them, not in that part of the town.

3665. Had you occasion, during the late epidemic, to notice the quality of the water?—Yes.

3666. What is your opinion of the state of the water, say in July and August last, previous to the outbreak of the cholera?—It was certainly not good; but I have known it previously to have been as bad as it was at that time.

3667. Do you mean in the year 1850, or frequently?—Frequently I have known it to be bad.

3668. Did you ever notice anything offensive in the way of smell about it?—No, I do not think I could say that.

3669. Or anything offensive in the way of taste?—No, it was principally in appearance.

3670. Was it thick as well as discoloured, or was it simply stained with peat?—It was occasionally rather turbid.

3671. Have you any opinion as to the effects which it may have had on the public health?—My own opinion is, that the late epidemic was not at all connected with the water.

3672. How do you view the question of the gas? Have you anything to say on that point?—It is certainly not good.

3673. You do not trace any connection between the impurity of the gas and the recent epidemic?—None whatever.

3674. Have you any opinion to offer us with reference to the connection between the state of the town and the recent outbreak, or on any point connected with the objects of our inquiry?—I cannot say that I have.

3675. (*Dr. Robinson.*) With reference to the comparative state of the town in 1831 and at the present time, are there not two or three circumstances which go to render the town more unhealthy now? In the first place, the building upon the open spaces, to which Mr. Clark alluded, which formerly existed in the interior of the town?—Yes, but my own opinion is that that would rather increase the sanitary state of the town. I think it would contribute rather to the health of the town.

3676. Are you of opinion that buildings upon open spaces in the interior of the town would tend to increase the health of the town?—They were certainly open in one sense, and yet they were circumscribed and closed in another, because they were completely surrounded by buildings and walls. I think there is a more free circulation of air now, than there was at that time.

3677. The next point is, as to the great immigration of Irish, which has taken place to a very great extent?—Yes, that is undoubtedly the fact.

3678. Since 1831 also, I believe extensive suburbs have been built?—With regard to the suburbs, for instance, the Shield Field, there I believe you have not such good drainage as you have in other parts of Newcastle; and yet in that locality, during the late epidemic, I found less mortality than I did in other situations where there was much better drainage.

3679. (*Mr. Simon.*) Will you mention to us the best streets in which you found cholera prevail; that is to say, the streets of the sanitary condition of which you formed the most favourable opinion?—For instance, Ridley Villas, and Regent Terrace—I think it is called Argyle Terrace also—and thereabouts.

3680. Would you take those as, to your knowledge, the best houses in a sanitary point of view, in which any considerable number of cases of cholera occurred?—Yes

3681. Would you like to mention any other locality?—Even in Pilgrim Street, the street in which I reside myself, in my immediate neighbourhood there were several cases.

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3682. (*Chairman.*) In what part of Pilgrim Street do you reside?—No. 1. Northumberland Street, just at the corner of New Bridge Street.

3683. Where was the mortality the worst, just in that neighbourhood; on which side of Pilgrim Street, east or west?—You had it on both sides; between Market Street and Blackett Street; and also there was a considerable mortality upon the very borders of the Leazes.

3684. (*Mr. Simon.*) Do you know all Ridley Villas?—I know them pretty well.

3685. And cholera prevailed in several of them, did it not?—Yes; choleraic diarrhœa prevailed in almost every one of them; and on the opposite side also, and in Argyle Terrace.

3686. Did cholera also prevail to any considerable extent in Ridley Villas?—I had no fatal cases there myself, but I heard I think of one or two there.

3687. But as compared with the great mortality of Newcastle, should you say that Ridley Villas suffered much?—I think that neighbourhood generally did. When I speak of Ridley Villas, I include with it the opposite side, Regent Terrace and Argyle Terrace; the whole district. Those streets or terraces are all contiguous.

3688. You would bracket all that as one district?—Yes; and immediately behind Regent Terrace, Buxton Street, and in that immediate locality I think it was extremely bad, very fatal, and Richmond Street; they are all close together there.

3689. (*Chairman.*) Do you know whether that district generally has water-closets in connection with the houses?—I should think they had; they would either have water-closets or privies, I think, the whole of them.

3690. For instance, in Richmond Street, or Buxton Street, have they water-closets or privies?—I should think privies.

3691. (*Mr. Simon.*) We should be glad, in respect to this whole group of buildings, Buxton Street, Argyle Terrace, Ridley Villas, and Regent Terrace, to know first of all, very distinctly, whether you think, as compared with the rest of Newcastle, this district suffered considerably?—Yes, it did.

3692. Then, as regards its sanitary condition, can you speak to its drainage?—I cannot speak from any personal observation.

3693. (*Chairman.*) You do not know whether the privies were regularly emptied or cleansed, or in what state they were?—Yes; I believe that they were regularly cleansed.

3694. (*Mr. Simon.*) Are they above-ground privies in connection with middens?—With ash-pits I believe they are.

3695. And you would look upon those as being the best group of houses you know, in which cholera prevailed severely?—Yes; there were a great number of cases there.

3696. Then, as regards Pilgrim Street, you live in Northumberland Street, and I suppose you practise among your neighbours there also. You go into many of the houses in Pilgrim Street?—Yes, a great many.

3697. Are they free, as a rule, from offensive smell?—Yes, generally speaking I think they are.

3698. (*Chairman.*) There is nothing offensive from the water-closets there?—No, not that I am aware of.

3699. (*Mr. Simon.*) We have had some rather strong assertions made about smells in those houses. Do you know whether the usual arrangement there is to have water-closets, or privies?—There are more privies I should think than water-closets.

3700. In Pilgrim Street?—Yes.

3701. (*Dr. Robinson.*) I think some of the first cases of cholera occurred in Buxton Street. Are you aware whether it is drained or paved?—It is not paved, certainly.

3702. And there is frequently mud there?—Yes, in bad weather.

3703. (*Chairman.*) Do you know in what state the brick-field, or open undrained space on the one side of Buxton Street, then was?—I dare say there were occasional places where there was an accumulation of water, where the clay had been dug out; but I do not think there was anything offensive, or anything of a nuisance.

3704. (*Dr. Robinson.*) The houses are divided into tenements in parts of Buxton Street?—They are.

3705. Behind Ridley Villas there are some new streets also, I would mention Ridley Street, which is also unpaved?—Yes.

3706. With regard to Argyle Place, I think there is a street leading by the goods station of the railway which is also unpaved and undrained?—Yes.

3707. And the road is very bad there?—Yes, in wet weather.

3708. With regard to Pilgrim Street, are you aware of the condition of High Friar Lane there?—Yes; that is in a much better state now than it was some years ago.

3709. Still there are frequent deposits of excrements and filth there?—I have not noticed it; it used to be in a very bad state, because there was a butcher's slaughter-house there.

3710. (*Chairman.*) Do you know what was the nature of the soil in the district about Ridley Villas, and Howard Street, and Buxton Street?—No, I cannot say.

3711. You do not know whether it is clay or gravel?—I cannot speak to that; it is clay, I should think.

3712. Of course, having undrained clay at the bottom of the houses would be calculated to depress the public health?—Certainly it would.

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3713. And would be a predisposing local cause?—It would.

3714. Since you remember High Friar Lane, some slaughter-houses which were there have been removed and the lane improved?—Very much improved.

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3715. (*Chairman.*) You are a surgeon, I believe?—Yes.

3716. Have you practised for many years in the town?—I have, since about 1813.

3717. We heard yesterday that the origination of the house-to-house visitation system in prevention of cholera was due to you; is that the fact?—Yes, I should say so. In 1831 and 1832 it was instituted down at St. Peter's, at Dent's Hole, and down by the side of the river. I had charge of Byker township in connection with my colleagues; for I was obliged to have two colleagues added. We instituted that system of examination into the premonitory symptoms, and we attended to the early symptoms; and I believe by so doing our treatment was successful, much more so than it would have been but for that attention.

3718. Were you a member of the sanitary committee of the eastern district in this town in October 1848?—No.

3719. Did you ever inspect Pandon with Dr. Headlam?—I inspected Cowgate, Silver Street, Stock Bridge, and Pandon too. I was requested by the board of guardians, which met in All Saints' vestry, to attend; and Dr. Headlam and myself were deputed to examine these districts.

3720. Was that in 1848?—1848 or 1849; it was in the second outbreak.

3721. Did you thereby become familiarly acquainted with the state of those districts in respect of sanitary matters?—I can hardly say that. The intention was to see that all pigstyes and midden-steads were removed; and that any water which was uncovered should be covered up; and that all nuisances which we could discover should be instantly removed.

3722. In what state did you find the district?—There were several nuisances that we got removed. There were some pigs taken away, and there was an open runner of water which was ordered to be covered in.

3723. (*Mr. Simon.*) Under Stock Bridge, a continuation of Pandon Dean?—I believe it is a continuation of it. But the monster nuisance which we discovered (at least I stated so to my friend, Dr. Headlam) was All Saints' churchyard. The walls gave way on one occasion, and the dead were launched amongst the living. The wall is past its perpendicular; it is buttressed up, and I told Dr. Headlam at that time that I should commence with that nuisance. However, the Doctor thought that the churchyards could not be interfered with. I got a motion carried that Mr. Walker's pamphlet should be ordered, who had done so much good service in London in churchyards, as to having them closed.

3724. (*Chairman.*) Where was this motion carried?—In All Saints' vestry.

3725. (*Mr. Simon.*) You have spoken of the dead being launched among the living?—The wall gave way upon one occasion, and, of course, the *débris* of the churchyard came down into the street; that I know of. Now the churchyard is immensely high. There is an immense descent, and if that low wall should give way it would be a tremendous affair; however, I presume that that is done with, that there is to be no more burials in churchyards here.

3726. (*Chairman.*) Did you go at all into the interior of the houses there at that time?—We did.

3727. Has your practice ever led you since then into the houses in those poorer districts?—Yes, in this last outbreak I had occasion to go down to the Pandon bank. I had charge of the gas company's men, and there was one of them there that had recovered from the diarrhœa, but was suffering from secondary fever, and I was anxious to see if we could not get him removed. I took one of the police down with me, and found the place better than I had anticipated. They had just cleaned it out; it was very decent for a low habitation, and the man remained there and recovered.

3728. (*Mr. Simon.*) When had they cleaned it out; in the latter part of the cholera time?—No, it was in the midst of it. The police were very active, very diligent; and there was a very great deal done to improve the state of things.

3729. Under the direction of the corporation?—Under the direction of the corporation. I may just state that I had some talk with the policeman; I said, "Where were you last "night?" that was on the Sunday morning. He said, "In Sandgate." I said, "What did "you see?" He said, "There were in one single room about fourteen Irish, drinking rum and "whisky; in another there was a congregation almost equal to it, and they were spending "the night in drunkenness." I just name that to you because I think you should bear in mind that there are other causes of cholera, that is to say, predisposing and aggravating causes, than dirt and filth, the demoralizing habits of the lower orders.

3730. (*Chairman.*) Were you ever in any of these districts in August 1853 before the outbreak?—Not before the outbreak.

3731. You could not compare the state of them in August 1853 with what you knew of it in 1848?—No, I cannot; I think a great deal has been done in improving the town, especially of late. The sewerage has been extended, and if the inhabitants do not avail

themselves of it by making side-drains, it is their fault. I have some property in Newgate Street, and there was no drain there for many years. We felt the inconvenience of it; but a large deep drain has been driven up there, and I got a side drain put into it. They have extended the sewerage in many other parts of the town, and I apprehend the town is greatly better than it was.

3732. Have you any opinion to offer us with regard to the state of the water during the course of this last summer, July, August, and September?—At one time the water was not good, when the supply was taken from the river; but generally speaking we have been very well supplied in this town, and with very good water. I apprehend that was the result of some misadventure (I do not know the particulars of it), because the gentlemen who have charge of that company certainly professed at first to supply the town with pure water, and condemned the old company very much for their ditch water or their dirty water; and excepting in that instance I think we have had good water; in my case unquestionably.

3733. (*Mr. Simon.*) Did you refrain from using it during the period of the epidemic?—We did not drink it; we used it boiled.

3734. Do you mean that you used it for tea?—Yes, we did.

3735. Did you observe any unpleasant smell or taste in the water before you discontinued its use?—No, I did not; it was a little muddy and dark.

3736. That was all the fault that you found with it?—That was all. I cannot say that it was offensive. I do not know whether one part of the town is supplied differently from another, but I confess I could not say that the water was so very bad. At one time it was muddy and thick and not what it was before, nor what it ought to be; but I do not attach so much importance to that circumstance; the river water is drunk in various parts. The Thames water is much fouler than the Tyne water, and it is drunk regularly.

3737. Do you know whether it is approved of in London by those who drink it?—The seafaring men approve of it. I do not know whether the inhabitants do or not. I have heard many captains that I have seen speak very highly of the Thames water.

3738. As a class do they drink it neat, or do they qualify it and make grog of it?—I cannot tell.

3739. (*Chairman.*) You would not recommend Thames water?—Not by any means; and yet I do not know, individuals eat animal food in a state of decomposition.

3740. (*Mr. Simon.*) Does it not very frequently give them diarrhœa if they do?—I do not know that it does frequently do so. I think they would give over eating game, if it did. I would not touch it for my part; I do not think it is wholesome. I do not think it is right to do so.

3741. (*Chairman.*) I have a note here implying that you can give us some information as to the gas?—Yes. When I make these remarks, I wish it to be understood that they have a bearing upon the origin of cholera. I do not think these are the causes of cholera—the bad water, and dirt, and filth—I think they are predisposing and aggravating causes, but they are not the causes.

3742. (*Mr. Simon.*) If they were exclusively the causes of cholera, you think cholera would always be found among you?—It would never disappear, because those washings with lime, &c., which are diligently pursued during an outbreak, are very soon abandoned, and things revert slowly and imperceptibly to the old state of things. If dirt and filth, and so on, bad sewerage and bad ventilation were the causes, then we should have the effects, and also the cholera, perpetuated.

3743. What would your experience say to this assertion, viz., that whenever the cause, whatever it may be, comes into operation, that cause acts more powerfully where there is defective ventilation, bad sewerage, dirt and filth, than in clean places?—I should say so; and yet it is very remarkable that, in this last outbreak, I saw some bad cases in a good range of houses. I think there cannot be better houses than were built by Messrs. Rush and Lawton, in Westmoreland Terrace; I mean, leading from the Cattle Market up to Rye Hill. Those houses have each of them two water-closets, a very perfect system of drainage, and for small houses are expensively built and fitted up.

3744. (*Chairman.*) The neighbourhood, I fancy, is not in such a good condition as the houses themselves?—The opposite houses seem very good houses; they have back yards to them on the other side of the street.

3745. We have heard a great deal about that district. Are you familiarly acquainted with the state of the houses in the district?—Yes, I know the houses well; Mr. Lawton lived a short while in one of them.

3746. Are you acquainted with the state of the houses in the other rows in the neighbourhood?—Yes, I have visited on the other side of the street. It is a very wide place; they have back yards, and I do not know that there is anything unwholesome in them. I only allude to the epidemic nature of the disease, and its diffusion during this last outbreak. It spread over a much wider surface, it extended all about the town.

3747. Whereas, previously, it had been more specifically confined to the districts in the lower part of the town?—Yes, it was perhaps more diffused in 1849; but we had but a slight touch of it in 1849.

3748. To what causes do you attribute that very slight visitation in 1849?—I cannot tell; I believe that the conditions of the town were pretty equal; there was nothing remarkable.

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3749. You are not aware of any unusual cleansings having been made about that time?—No, I do not know.

3750. We have had information given us from certain reports of the medical institutions of this town, and from other sources, as to the causes which rendered the attack of cholera in 1849 so light. You do not happen to be aware of them?—I am aware that one reason stated is, that there was a better water supply, and that is a weighty reason, because there were facilities for sluicing the sewers. I believe there was a scantiness of water here in 1853.

3751. (*Mr. Simon.*) You do not know of anything out of order in Westmoreland Street, or in that neighbourhood?—I do not.

3752. From this book of reports by the inspectors of nuisances I find that on September 20th 1853, which as you know was at the height of the epidemic, there was a nuisance on some premises there caused by the oozing of water from the common sewer into the cellar, which produced a stench; you would consider that a very serious evil, would you not?—It is a very common occurrence. It is very difficult to have drains tight; the drains in my own house emit a bad smell now and then during the summer months.

3753. What street is that in?—Oxford Street; I have had them taken up and cement put in, but owing to the vermin getting into the drains and burrowing it is very difficult to have brick drains perfect.

3754. (*Chairman.*) Is it your impression that it is a common thing in Newcastle to have stenches from your sewers and drains?—I speak for my own premises; It is better now. The other summer there was a very disagreeable smell, and I had it taken up and repaired, and the workmen stated that they blamed the rats for damaging the drains.

3755. (*Mr. Simon.*) When we wished to have your opinion about the general relations subsisting between uncleanliness and cholera, you drew our attention to the fact that it had prevailed in a very good class of houses, where to the best of your belief there was no filth, and you mentioned Westmoreland Street, and that neighbourhood. When we refer to Westmoreland Street, we find that, at the very moment to which you allude, there was leakage going on from the sewers into the cellars of a house. Would you regard that state of things as compatible with the good sanitary condition of a place?—By no means.

3756. So that on reconsideration perhaps you would hardly consider this instance or illustration as interfering with the general statement with which you have favoured us, viz., that the cause of cholera operates in proportion to defective ventilation, to defective sewerage, to dirt, filth, and so on?—I cannot tell; I am so totally in ignorance of the cause of the cholera that I cannot answer that question, because there were some strange exemptions in this town during these visitations. There were localities where you might have looked for it; and where, according to that mode of reasoning, it ought to have appeared, and they escaped.

3757. (*Chairman.*) Can you give us an instance, within the borough, of a place, which from its filthy condition might have been expected to be ravaged with cholera, which on this occasion was exempt?—I cannot point exactly to one particular spot, but I remember very well that in 1831 and 1832, when I had more to do with the disease amongst the lower orders, I was very much struck with the exemptions, the manner in which the disease passed over some places which were extremely dirty and bad.

3758. What information can you give us with reference to gas?—I had charge of the gas company's men in 1849, and in 1853. In 1849 there were only two deaths amongst the men. I went down and saw the premises along with the foreman; we put everything right by white-washing and so on.

3759. You thought that of importance with regard to the prevention of the disease?—Doubtless, and as favouring their recovery if they did take ill. I saw several of the men in that visitation in the Manor Chare, in Pandon, in Sandgate, in Silver Street, some of the very bad districts of the town; and they were ordered to come to me regularly by day or by night upon the slightest intimation of disease; and there were only two deaths after I had charge of them in 1849, and I think the men were very much indebted to the directors and to the foreman for looking narrowly and carefully to their habits; I mean in inculcating upon them sobriety, for it must be evident to you, gentlemen, that there is, as I think, some change in the constitution of the atmosphere on these visitations; fermented liquors are very apt to become sour; and I think a great deal of mischief is done by drinking on those occasions. In 1853 again I had charge of the men; and there was only one man died; and I regret to say that I saw such a scene of depravity then as I never witnessed in my life. All the females were drunk, and that indiscriminate use of brandy is very much to be deprecated.

3760. Is there any other point?—I think, if you wish to take in all the causes, some attention should be paid to those sinks of iniquity where the people's morals are destroyed and debauched, and their health injured. I refer to the low public-houses about this town. The corporation have done wisely in appointing an inspector of provisions, but I wish they had an inspector of drinks; for if men are so dishonourable in their conduct that they will adulterate provisions, or offer them for sale in an unfit state, I think they are just as likely to give to these poor fellows improper drinks; and I wish you would take it into your consideration. We have a great many low Irish in this town, and the habi-

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of drunkenness is so prevalent, and the facilities for getting drunk are so great and the temptation so great, that I think the magistrates ought to look more narrowly into it, and take away the licences from these low public-houses.

3761. I believe that you took part in the arrangements made in 1831-2 for the repression of cholera?—I did.

3762. I wish to elicit your opinion as to the comparative merits, so to say, of the arrangements made in 1831-2, and in 1853, for the repression of cholera?—In 1831 and 1832 I adopted, along with my colleagues, a system of visitation amongst the inhabitants of my district, down at Dent's Hole and St. Peter's. I settled, in conjunction with my colleagues, a mode of treatment, so that there was no confusion or discrepancy, and we co-operated cordially and heartily together; and I think, by early attention to the premonitory symptoms, and by the inculcation of temperance, abstinence from beer and spirits, and by having a depot of suitable remedies in Mr. Plummer's house, to which the people could have access upon the first appearance of disease, a very great deal of mischief was prevented. The system of house visitation was again adopted in 1853 here. I presume with very great advantage.

3763. Have you any further observations to make with reference to the arrangements of 1853?—No. I had not the pleasure of seeing Mr. Grainger, and only once of seeing Dr. Gavin, at a rather stormy meeting at the infirmary. I went there, hoping to have learned something for some practical purpose. However, it was not so, and I was too much occupied to pay attention to anything else. Dr. Gavin seemed to be very desirous to do all that he could for the benefit of the town and the benefit of the profession, and he did his best; but I had no appointment under the Poor Law guardians.

3764. What was it which rendered this meeting so stormy?—Accusations against one party and another.

3765. Accusations by one party against another?—Yes, I think so. I mean that the Board of Health officers were accused of want of energy, and of not acting promptly; and the guardians were thought not to have acted with sufficient energy at the onset; though I think afterwards they did everything that they could do. But I confess it happened so in 1831-2. There is a disinclination to anticipate the evil; and if professional men say a very great deal about it, they are called alarmists.

3766. Various charges and inculpations of and against the inspectors of the Board of Health have been made before us. We wish to get your opinion as to whether they can properly be charged with any fault or blame in the matter?—I signed a paper on behalf of Dr. Gavin, approving of his conduct.

3767. Have you anything further to add to that opinion?—Nothing further. I thought he seemed anxious to do all that he could. I only saw him once.

THOMAS MICHAEL GREENHOW, Esq., sworn.

T. M. Greenhow,

3768. (*Chairman.*) I believe you are senior surgeon of the infirmary?—I am.

3769. How many years have you been connected with that institution?—Twenty-two years.

3770. And have practised longer than that in the town, I believe?—Much longer.

3771. Are you cognizant of the contents of the reports of that institution?—Pretty well.

3772. Have you anything to say why we should not accept the statements in those reports as true?—Nothing whatever.

3773. May we put the same question to you as regards the reports of the dispensary and fever hospital?—I am not so well acquainted with these institutions, but I have no reason to doubt the truth of their reports, and never had. I have looked over them for years, and never doubted the truth of them at all.

3774. Were you a member of a sanitary association formed about the year 1847?—Yes.

3775. (*Mr. Simon.*) And you signed a report which the committee of that association addressed to Mr. Rawlinson on the occasion of his visiting the town in 1849?—Yes.

3776. That report speaks to the fact of the excessive mortality of the last few years having "arisen solely from zymotic or epidemic, which are in fact the most preventible "diseases?"—I believe that in a great degree that was the case, as it also is the case in all large towns, I believe.

3777. Speaking of the habitual seats of fever, it says: "To describe the seats of "typhus and other forms of continued fever would be to enumerate all the narrow "undrained alleys in the older parts of the town, together with many equally unhealthy "because still more neglected districts in the suburbs?"—I believe that is perfectly correct.

3778. "In many parts of Newcastle, fever may be said to be never absent; and a "continued residence in those unwholesome dwellings is certain to involve the prostration "and eventually the death of some members of the family by fever?"—I believe that also is perfectly correct.

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3779. "As an illustration of this statement, we may refer to the statistics of fever in "a notorious locality during a portion only of the epidemic of 1847, by which it appeared "that in nine rooms in Craig's Court, tenanted at the time of inspection by fifty-five "inhabitants, there had been, within the three months immediately preceding our visit, "no less than fifty cases of fever, and five deaths?"—I believe that is a true statement.

3780. This report was made to Mr. Rawlinson shortly after the sprinkling of cholera which you had here in 1848-49, and it expresses itself on that subject as follows:—"The "comparatively few cases of malignant cholera which have occurred in Newcastle supply, "we think, amply sufficient evidence both of the invariable dependence of attacks of "this epidemic on certain predisposing physical causes, and also of the necessity for "continued vigilance on the part of the authorities, lest this fearful disease, in the event of "a second visitation, by no means an uncommon accident in its erratic course, should "exercise a more destructive influence upon the inhabitants of Newcastle?"—These are sentiments in which I quite concur. I believe they are quite correct.

3781. Is it within your recollection that just before the time referred to in this report there had been very extensive works of cleansing in the town, in consequence of the Irish fever, and in anticipation of the outbreak of cholera?—It happens that whenever there is an epidemic, either of fever or of cholera, the public authorities are immediately excited to attention to these subjects, and a thorough cleansing is generally instituted.

3782. Do you find that in the intervals between epidemics that vigilance relaxes?—I apprehend it does, as regards local causes of disease. I think as regards the general condition of the town, perhaps it is improved, because I know that within that period very extensive drainage works have been carried out through some large thoroughfares, where they were very imperfect before.

3783. Large sewers, do you mean?—Large sewers have been constructed, but there is one thing which has rendered these in a great degree useless, viz., that the inhabitants have not made side sewers from the houses into them in many instances.

3784. You are surgeon to the prison in this town?—I am.

3785. This is your paper, I believe, (*handing a paper to the witness*)?—Yes, I believe it is.

3786. We find that, between the 1st of September and the 20th of October, the prison contained 236 persons?—Not at one time. About 144 was the number, I know, at the commencement, and I believe it kept pretty equal during the whole period. Some were dismissed and some were admitted daily.

3787. Amounting altogether to ninety-two. There was a shift of ninety-two?—Yes.

3788. So that at different periods during these seven weeks, though not simultaneously, there were altogether 236 different persons confined in the prison?—I dare say that is quite correct.

3789. Among those 236 persons we find that you had 142 attacks of diarrhœa, of which fifteen went on to cholera, and that there were nine deaths?—Yes, that is correct. When you say fifteen went on to cholera, you will recollect that those fifteen were only those that went on to the extreme stage of cholera. It appears to me that the distinction is perfectly unphilosophical between cholera and approximate cholera. In fact they are merely stages of the same disease, but I put them down according to the suggestion of Dr. Gavin, and I was willing to make the statement not too strong.

3790. So that you think the cases put down here as approximate cholera ought to be put down as cases of cholera?—I consider them cases of cholera, not cases of collapse.

3791. That would add twenty-one cases to the other fifteen cases, so that there were thirty-six cases of cholera and nine deaths?—Yes.

3792. We find that the prison contains fifty-two sleeping cells, comprising from 350 to 400 cubic feet of air, and that a prisoner sleeps in each cell in that part; that there are also twelve rooms, originally intended for sick rooms, but that in consequence of the deficient accommodation, these are now used as sleeping rooms; that they vary in size from 750 to 800 cubic feet, and that the number of prisoners sleeping in these rooms varies from three to five, and occasionally six?—That is the case I believe. I should think there were five in several of the rooms, certainly, from my recollection.

3793. That would be from 150 to 160 cubic feet of space for each prisoner?—Yes.

3794. Do you happen to recollect what is the minimum allowance permitted in registered lodging-houses; is it not 300?—I think it is 300 or 350, and that I apprehend is at least one-half too little for the preservation of perfect health.

3795. Then you would regard this as excessive overcrowding?—I think it is being excessively overcrowded during the night, but that is inevitable from the construction of the prison.

3796. Then again I find that, during the late epidemic, eight prisoners were confined to bed (that I presume is day and night) in one room containing 1,850 cubic feet; that is 230 each?—Yes.

3797. And nine prisoners in another room containing 2,400 feet?—Yes; that is perfectly correct.

3798. You would consider that also overcrowding?—Much overcrowded. They were prisoners ill of cholera, choleraic diarrhœa, or in its various stages.

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3799. Has it devolved upon you to make any representations to any one of this overcrowding in the prison?—I wrote to Sir John Kincaid on the subject; at his request I made a statement to him.

3800. At what time?—I should have done so at the very beginning of the cholera, but my time was so occupied then that I had no opportunity; so I did it afterwards, between that time and Christmas.

3801. Had you ever before represented that the prison was overcrowded?—I do not know that I had except in general conversation. I never made any written statement before to that effect.

3802. But in conversation you had done so?—In conversation it has been repeatedly done.

3803. To the visiting justices?—To those in authority. With Mr. Frederick Hill, who used to visit this place, I had frequent conversations on the subject, but if I may be allowed to state it, those two cases where there were eight females ill in one room, and nine in another, were of the most exaggerated description; the hammocks in which they were slung nearly covered the entire floor, and the ventilation was imperfect; it was only by three narrow windows at one end; and you can easily imagine that all the animal excretions which took place there, and which required to be removed, would tend to vitiate the atmosphere in a much greater degree than where there was plenty of space and plenty of air, and better accommodation. In consequence of this condition of things, I very soon made a representation to the magistrates, and with their concurrence and the assistance of the town surveyor some hospitals were established;—for the prison has no infirmary, no special accommodation for the sick whatever;—there was a female hospital established in the men's school-room, which was contiguous to the female part of the prison, in which eight beds were placed; and as soon as the patients were removed to this hospital, it relieved in a most important degree the pressure of patients within that part of the prison appropriated to females, and in the male part of the prison two or three hospital-wards were established, in what are called day-rooms, which answered the purpose very well, and the improvement certainly in the sanitary condition of the prison after that was very conspicuous. I think these hospitals were ready about the 13th of September.

3804. Do you believe that the mortality of the prison was aggravated by this crowding?—I have no doubt of it whatever. I have no doubt that, in these female wards especially, some of the sick died very much in consequence of the extremely crowded and ill-ventilated condition of the rooms in which they slept.

3805. Was the ventilation bad throughout the building?—The ventilation in other parts of the building is better than in these rooms. They are within the tower, which is the entrance part of the prison; and they are not allowed to have any windows facing the street. The consequence is that the window is all at one end of the room, which is narrow compared with its length, and the ventilation is consequently extremely imperfect.

3806. Is it furnished with a fireplace?—Yes; but the ventilation becomes very defective, during the night especially, and when there are sick persons in the room. The presence of sick persons of course increases the necessity for ventilation, and diminishes the power of ventilation.

3807. Do you believe the drainage of the establishment to be good?—I believe every means is taken to render it good; but you will remember that the drainage of any building of that sort can never be good, unless the general drainage of the town is good into which it empties itself. Now I am not acquainted exactly with the condition of the sewerage from that part of the town to the river. I have detected sometimes a water-closet which has been foul, especially one at the bottom of the stairs, which leads up to this tower where the female prisoners were; but it was immediately corrected when I pointed it out. This was at a very early period of the disease, or perhaps when there was a previous form of disease, namely dysentery, which prevailed for a few weeks in the prison.

3808. Had you had occasion to notice the stoppage of that same drain before?—I had not.

3809. Have you noticed in visiting the prison occasionally the smells of offensive drainage?—I do not think I have often done so. The fact is, the greatest possible attention is paid to all these matters, and the health of the prison is remarkably well maintained generally. I have rarely known any appearance of epidemic in it, and for the most part the health of the prisoners is what I should call good.

3810. Do you find the place dry at its lower parts?—I think it is. It stands upon two levels. The lower level is towards the yard, where the prisoners are employed in breaking stones, and the upper level is a storey higher, and looks towards the garden; and in that level the principal radii of the prison are placed: but in this lower level there are some cells which are occupied sometimes for punishment, and there is a back wall with a passage between it and these cells; the back wall being towards the surface behind. Now, there are four of these cells, I think, in which prisoners are occasionally punished, and I never knew them suffer from that cause. I think the rest of the prison is dry; very dry on the whole.

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3811. Can you recollect your first case of cholera last year?—Yes, a decided case of cholera was about the 7th or 8th. I think it was a man of the name of Gibson, who died on the 8th.

3812. Do you know whether he had been long in the house?—He had been some time in the house, I recollect; because his wife was there at the same time, and I think for the same fault, but I cannot tell exactly how long.

3813. Regarding the diet of the prisoners, should we be able to learn how many there were on each of these different classes of diet?—I think the governor would be able to furnish you with that information. I must say, with regard to the diet, that it appears to me to be very ample and very good.

3814. Did you make any alteration of it during the epidemic?—Yes, we omitted altogether vegetables in the diet; the potatoes were discontinued, and rice was substituted. The soup also was discontinued, and meat was given instead, every day.

3815. In all the diets?—I believe in all the diets. I think every attention was paid that was likely to conduce to the health of the prisoners in regard to diet; but generally speaking the diet appears to me ample and good, much better than I have known many working men able to feed their families with; and generally the health of the prisoners was well maintained by it, as I have told you before.

3816. Did you make any observations on the water during the epidemic?—I made no chemical investigation of the condition of the water. I know that it was very dirty in appearance.

3817. Did you taste it?—I am not sure that I tasted it at the prison. I dare say I did so at my own house, where I make use of it also, not entirely, but in making tea and in washing.

3818. Can you answer whether it had or had not any offensive smell or taste?—Occasionally I think it had an offensive smell, but whether that depended upon its having been within a cistern for some time, or any other cause, I cannot tell; but in washing with it, which I was obliged to do at that time, I sometimes remarked that the smell of the water was disagreeable.

3819. At your own house?—At my own house.

3820. Do you draw that water from a cistern?—No; it is drawn from the tap direct, at my house, without any cistern.

3821. Without any connection with a water-closet?—Without any connection with a water-closet.

3822. Did you notice the taste?—I can hardly speak to the taste; I tasted as little of it as I could, owing to its appearance, I dare say. With regard to the water, I do not know whether I ought to volunteer any remark or not, but I should say, that whenever the water is not good, concurring with other causes, it is likely to predispose to any epidemic disease that is prevalent at the time; and that, I think, is all that I can say upon the matter, except that I know that about that time the water was less pure from causes which are quite notorious; and it would be absurd to attempt to disguise the fact.

3823. Can you speak from personal knowledge of its having produced diarhœa?—I cannot tell. I cannot tell what share it had in the production of disease at all; I can only speak to its not being so pure as it ought to have been, and to the probability that, concurring with other causes, it might lead to the production of disease.

3824. At present, you have not much knowledge of the poorer parts of the town?—I have not; much less than I had formerly.

3825. Can you suggest to us whether we could improve upon the sort of evidence that we have got upon that subject from the Poor Law medical officers; are they likely to represent it to us fully and accurately?—I should think they are. I know some very intelligent medical men are employed by the Poor Law guardians; and I have no doubt they will give you as true and efficient evidence as you can expect from any one on that subject.

3826. Can you favour us with an opinion on the condition of the dwellings of the middling classes here, as regards sanitary accommodation?—I think you must have observed, if you have seen much of the town, that the habits of the people here within their houses, are not so cleanly and orderly and careful, as regards those sanitary conditions which are likely to promote the health of the inhabitants, as they might be; that I consider is a very great evil in this place. It is one which I have endeavoured on many occasions to counteract; perhaps sometimes the advice which I have given has been attended to. My opinion is, that the sanitary condition of the town externally, is dependent upon the public authorities; but it is different as to the causes of disease within their own houses. Now, that exists occasionally amongst what I should call the middle classes, as well as among the working classes; but it is very difficult to draw a distinction, and very difficult to make one set of people perfectly cleanly, while the great mass of the people are not so cleanly as they ought to be.

3827. Is the arrangement of privies in conjunction with ash-pits, rather than water-closets, the general arrangement among the middling classes here?—I think water-closets are becoming more prevalent than formerly in the middling parts of the town; but still, I believe privies prevail very much, and are often in a very bad condition, which tends to vitiate the atmosphere of the town and neighbourhood.

3828. Would you consider it of extreme importance that means should be taken for enforcing house-drainage?—I think so.

3829. When you say house-drainage, you mean probably that the fœcal matters of the house should be carried off, as by a water-closet?—I think that is the most efficient mode of getting quit of them, certainly. There is nothing more offensive than sewage accumulated in privies and cesspools; and in a town like this, where there is such an excellent descent towards the river, the drainage might be, and ought to be, I think, more perfect than in almost any other town that I am acquainted with.

3830. Do you know of any other arrangement than that of a water-closet by which those matters can be continuously and effectually got rid of?—I have not, perhaps, considered the subject sufficiently to suggest any other means whatever than those which are ordinarily in use in great towns. But the more perfect these arrangements are made in each individual house, the better, I am satisfied, will be the health of that house and of the contiguous houses, and of the whole neighbourhood, in short. If I might be allowed to volunteer a remark, I should say, in reference to those remarks of Mr. Frost's, that I know in the neighbourhood of Westmoreland Street some places which are extremely deficient in everything that is likely to promote health. There is a lane which runs on the west side of Blenheim Street, between Blandford Street and Blenheim Street. Now, I have had reason to observe that in some parts of this lane there is the greatest want of attention to all that should promote human health. Some most disorderly people live there. Their houses are filled with filth of all sorts; and they make the neighbourhood as bad as themselves. My attention has been lately more directed to that subject, in consequence of my visiting persons who were ill in Blenheim Street. I have once or twice, and, I believe, oftener, within the last few years represented this subject to the board of guardians, or the authorities, without, I must say, its having been effectually attended to. However, I have caused it to be so represented to them, by inducing the inhabitants to do so. Now, it would conduce, I think, to the health of that district if this place in particular, and perhaps others equally bad, were properly attended to.

3831. Supposing the houses in Blenheim Street and in Blandford Street themselves were in decent order, would you consider that this condition of the lane situated between them was sufficient to act injuriously on the health of those places?—I think decidedly so. I saw some persons who were ill there; and in a house two or three doors off more than one death, I believe, occurred in a respectable middle class house, in immediate proximity to this particular focus of nuisance which I refer to.

3832. Did you, in your own practice, see much of the occurrence of cholera in houses that at first blush would seem to be well-conditioned houses?—Yes, I did. I saw some cases, certainly, in a rank of life where I should not have looked for them, and in houses which, I should have thought, were tolerably free from those exciting causes which are dependent upon the kind of negligence to which we have been referring.

3833. Were you able to make detailed inquiry as to whether they were really free from sanitary evils?—I am hardly able to answer that question with precision. I made some inquiries, but perhaps not in that systematic way which would enable me to make any particular remark upon it.

3834. Do you know anything of the sewerage of the town, for instance, in Westmoreland Street; which was quoted to us just now as an unimpeachable locality; but in regard of which, in the official reports by the inspectors of nuisances, we find record of a leakage from the sewer into one, or perhaps more, of the houses there, which, of course, is equivalent to no drainage at all?—I should quite agree with you there. I think nothing is more likely to produce a noxious vapour than that sort of leakage; but whether it exists in many instances I cannot tell.

3835. Then again at a particular corner of Fenkle Street and Clayton Street, it was suggested to us by Mr. Grainger that cases of, and even deaths from, cholera had occurred in houses possessing all proper sanitary conditions except thorough ventilation. On inquiry, however, we find that there are two sewer grates facing the spot where the largest amount of mortality occurred; and on making an examination of the sewer beneath we find an accumulation in it to the depth of some twenty inches of soil?—I can easily believe that; because in passing along that part of the town, Clayton Street, which I do every morning, I have often found the odours excessively offensive; evidently arising from fœcal accumulation in some shape or other.

3836. Along the whole length of Clayton Street?—Along the whole length of Clayton Street. I have repeatedly felt it; of course more intense at one point perhaps than at others.

3837. Is it your impression generally that the sewers of the town are effectual?—I do not know exactly the state of the sewerage; but I should think that the sewerage is very inefficient in many parts of the town. I know that in many districts which have been newly built there are no sewers at all.

3838. But as respects such a district as that with which Mr. Grainger's name is associated, Grainger Street, Clayton Street, Nuns Street, Nelson Street, Blackett Street, and thereabouts, what would be your opinion?—I live myself in Blackett Street, at the corner of Eldon Square, and I must confess that I doubt the perfection of the drainage, which has been laid down there. Like Mr. Frost, I have repeatedly required to have the drains under my own house examined and sealed with cement; and for some years past I think I have not been annoyed with them; but formerly I was very much annoyed with them. But I should apprehend that, when Mr. Grainger laid down these drains, twenty

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years ago perhaps, they were hardly done in the very efficient manner in which I dare say our town surveyor would take care that they were done now. Perhaps Mr. Grainger did them according to the lights of the time, as well as was to be expected from a person who was carrying on such immense works as he was at the time; but I should think that, if these were to be examined now and replaced, there would probably be found many defects in their original construction to be corrected. In Blackett Street I may state that a great many cases of cholera occurred during the late epidemic. At the east end of Blackett Street, I believe there were four or five houses, in each of which an individual died, and persons in the middle rank of life.

3839. (*Chairman.*) Between Eldon Square and Grey Street?—No; between Eldon Square and Northumberland Street.

3840. (*Mr. Simon.*) On the north side?—On the north side of the street.

3841. Do you know anything of the drainage of those houses?—No; I cannot say that I am intimately acquainted with it; but I should doubt its being particularly good. I saw one person who died, whose husband is a poulterer, and has a very small yard in which he keeps a quantity of poultry; and I should question very much whether the drainage in that place is at all what it ought to be, or in the others more immediately adjoining it. It is my impression, not that I can speak accurately as to the drainage or its efficiency, that it can not be and is not very good there, because the houses appear to me to give evidence when you enter them that the drainage is defective.

3842. Adopting your criterion of effectual drainage, viz., whether or not in passing along the street you perceive a decided stink arising from gully holes, and whether on entering houses you find a perceptible smell of drainage there, should you say that the best parts of the town are well drained?—I should scarcely say they are so well drained as they might be. In the best parts of the town the drainage is old, and was done piecemeal by the persons who built the houses, and not according to any general plan; and I should think that these fragments of drainage do not very well dovetail into each other, and that the condition of the best parts of the town is by no means complete in that respect.

3843. I dare say you may have heard that there has been some difference of opinion with respect to the action of the officers of the Board of Health here, and the action of the Board of Health itself?—I believe the guardians have been the local Board of Health here exclusively, and Dr. Gavin and Dr. Lewis and Mr. Grainger were here to assist. I must say that, if I had been the board of guardians in my individual person, I should have looked after things sooner; because I do not think they attempted anything until the actual outbreak took place; but we know how very difficult it is to move a body in that way to anticipate an evil. I certainly should have been better pleased if they had looked after the matter sooner. Now, with regard to Dr. Gavin, I saw him several times; he appeared to me to be extremely energetic and active, and desirous of enforcing the best means of remedying evils which existed, and of preventing the continuance of the disease. I must say that as far as I saw of Dr. Gavin, I was very well satisfied with what he had done, and what he was recommending to the guardians, for I was there on one occasion. I thought that his mode of advising was extremely judicious, and there appeared at that time to be a determination on their part to act upon it with the greatest vigour.

3844. And Mr. Grainger?—I did not see Mr. Grainger.

3845. As respects the operation of the General Board of Health, do you think that the power which the General Board of Health has over boards of guardians, to incite them under certain circumstances to the performance of particular acts of household visitation and the like, is a useful power, such as you would wish to be exerted under the circumstances?—I do; it appeared to be very usefully exerted on the late occasion certainly; and I should think, unless the local authorities are active and efficient in instituting these same means of prevention, it is very desirable that they should have a superintending body in the General Board of Health in London, to enforce attention to all these matters, which are called for on an occasion like that.

3846. You were in practice here in 1831?—I was.

3847. Will your memory serve you to compare the two periods?—Yes, it will in a great degree, I think.

3848. Do you think that the arrangements made for the relief of the sick were better in the one period or in the other?—I should think that they were very much the same on both occasions. As soon as ever the disease appeared to be extending, I remember that the mayor of Newcastle of that day did what was extremely proper; he instituted a local board of health; he called together all the medical practitioners in the town, and others who were likely to assist in the formation of such a board of health efficiently, and he consulted them, and several meetings took place when the disease was *in limine* only; and I think the arrangements were made with considerable activity then, and considerable efficiency. One or two blunders were made, but they were in trying too much, for example, cholera hospitals were established, which I conceive were decidedly injurious rather than useful, with regard to the degree of mortality; but they did what has been done lately, they removed all local nuisances, they whitewashed all entries, they flushed the narrow lanes, and did all these sort of things, which are generally carried out when the emergency arises, and which it would be much better to carry out beforehand certainly. That is all I can say.

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3849. Was there at that time anything like a house-to-house visitation for the prevention of the disease?—I had no share in that part of it myself, but I believe it was established at that period, and found useful in counteracting the earlier stages of the disease; but it was not carried to the extent which it was on this occasion, because it was more systematically carried out now, and better understood.

3850. Are you a member of the town council?—I am not.

3851. Are you aware of any systematic exertions made by the corporation for the improvement of the habitations of the poorer classes, by cleansing filthy and unwholesome dwellings, previously to the outbreak?—I am not aware of any specific attempts that were made immediately before the outbreak. I know that the corporation have been carrying on, as I stated before, a constant increase in the drainage of the town, and have completed some important sewers within the last year or two; and I told you also that I was afraid, indeed I am pretty sure, that the inhabitants of these districts, although good districts, have not availed themselves of those sewers by making side drains, in the way that they ought to have done; but I do not remember any very specific preparation which the corporation or anybody else made for the expected outbreak of cholera.

3852. You do not know of any exertions, extending, for instance, over the last six or seven years before the outbreak, directed continuously to the improvement of the condition of the poorer classes in regard of their dwellings?—I believe the lodging-houses had been visited and regulated better than formerly in some degree, in conformity with the Act of Parliament, which requires such visitation and such regulation; but beyond that I am not aware of anything specific which has been done.

3853. Are you aware whether any bye-laws were ever made for regulating lodging-houses before this outbreak?—I can hardly speak upon that subject. I would rather not say what I am not certain about.

3854. Is there any information which you would be good enough to volunteer to us?—I think you have almost induced me to say all that I know upon the subject.

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SAMUEL THOMPSON, Esq., sworn.

3855. (*Chairman.*) You are governor of the gaol in this town?—Yes.

3856. How many years have you occupied that position?—Upwards of seventeen.

3857. (*Mr. Simon.*) It has been given in evidence here with respect to certain prisoners who died during the autumn of cholera, that at that time there was considerable overcrowding in the gaol?—The prison was at that time very full.

3858. Is that frequently the case with it?—It is. The average number of criminal prisoners I think for some years back has been about 120, but it was above that at the time, somewhat above 140 I think.

3859. With respect to the privy accommodation in the gaol, are there water-closets or privies?—There are water-closets.

3860. Within the building?—Within the building; that is to say, within the airing-yards of the building, to which the prisoners have access in the day-time. At night they have not; but they are provided with night tables in their sleeping cells.

3862. Are the water-closets well constructed?—Yes, and plentifully supplied with water.

3863. Like the water-closets of an ordinary gentleman's house?—Perhaps not so good as those; but I believe they are very efficient for the purpose. If they get choked, of course it is immediately seen and attended to.

3864. Is the drainage of the premises good?—There is a very good main drain, and the water-closets are placed above that drain, and plentifully supplied with water. It is not constantly flowing, but there is a tap which every man can turn.

3865. Do you ever have any obstructions in your drain?—No, I have never known any obstruction of that drain.

3866. Do you have on the premises any kinds of offensive smell?—If you go into a cell where a prisoner has been sleeping in the night, and has used the night table, there is an offensive smell; but perhaps it is as pure a prison as ever you saw in your life; and has up to this last autumn been one of the healthiest in the kingdom.

3867. (*Chairman.*) Has it been more crowded this last autumn than usual?—We have been I think more crowded during the last autumn, and during the year.

3868. To a considerable extent, or merely to a trifling extent?—Sometimes to a considerable extent.

3869. (*Mr. Simon.*) Is there damp at all in the lower parts of the prison?—No, I do not think we can complain of damp at all.

3870. Do you reside in the house?—Of course I do. I am compelled to do so, within the walls; my dwelling-house is distinct from the criminal prison.

3871. Does the whole building lie within a high wall?—Yes. There is a considerable unoccupied space about it, and it has been considered one of the healthiest prisons in the kingdom. I have no hesitation in saying so.

3872. (*Chairman.*) It has not been subject to typhus?—No, not subject to it. We have had instances of it, but they are of rare occurrence.

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3873. Not to any extent?—No, and we never had a case of cholera except once before.

3874. Had you ever before any overcrowding to the same extent?—Yes, I have had more. I once had to the amount of 163 criminal prisoners.

3875. Do you remember when that was?—I cannot at this moment say; perhaps it might be 1851.

3876. (*Mr. Simon.*) Did you ever see any reason to complain of the quality of the water supply during the existence of the cholera?—It was dark; occasionally very turbid.

3877. Muddy?—Yes, about that time it was muddy.

3878. (*Chairman.*) Are you supplied by the Whittle Dean Company?—We are.

3879. (*Mr. Simon.*) Did the prisoners complain of it?—I never heard of one complaint.

3880. Did you think it yourself?—No, I did not.

3881. Was it drunk in your household?—No, it was not.

3882. (*Chairman.*) You usually drink it, do you not?—No, I do not; I filter it. I have filter in my own house. I have had it for many years. We use it constantly for tea and for culinary purposes.

3883. (*Mr. Simon.*) But during the epidemic did you discontinue your use of it?—No, not for those purposes.

3884. You still used it for tea and cooking?—Yes, filtered.

3885. (*Mr. Bateman.*) You drink spring water, I suppose?—Yes, and occasionally a little small beer.

3887. (*Chairman.*) Are the other officers and servants of the institution in the habit of drinking Whittle Dean water?—Upon my word I cannot tell. I do not know any other that they have to drink.

3888. You did not hear of any of the officers or servants of the institution discontinuing any customary use of it in consequence of its being bad?—I really cannot say that I did. I have no recollection of it.

Annandale, Esq.

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THOMAS ANNANDALE, Esq., sworn.

3889. (*Chairman.*) You are a surgeon in this town?—Yes.

3890. And have practised here for many years?—Yes, since 1829.

3891. You reside in Northumberland Street?—Yes.

3892. How is your own house circumstanced with regard to privy or water-closet accommodation?—We have both.

3893. Are you able to speak as to the state of the houses belonging to your neighbours on either side?—It is a very common custom in this town to have both a water-closet and also a privy in the back yard. It opens on the top of the dry ashes, and is used principally by the servants of the house.

3894. The privy is in connection with the ash-pit; how is it emptied, by a back lane, or through the house to the front?—In my house, from a back lane.

3895. Then the statement as to the men having to wheel the refuse through the houses is not correct as regards your house, at least?—No.

3896. Is it correct as to the houses of your neighbours?—Not any of my immediate neighbours. It is with respect to the Orphan House next door, which is a large tenemented property.

3897. Were you ever cognizant of the discovery of a sewer, which was said to have been forgotten and unknown at the time of the making of a new one?—Yes.

3898. Where was that?—Immediately at my front door. There was a very large sewer running up the centre of the street; and in making an opening out of the house next door, there was a large drain discovered, which had not been known of.

3899. In what part of Northumberland Street do you live?—No. 62, immediately opposite Savile Row.

3900. (*Mr. Simon.*) Can you speak to the state of the house property generally in that district?—The Orphan House, immediately adjoining my house, is in a very bad state, and Mackford's Entry, immediately above it, too; but this is much improved of late, since the cholera.

3901. (*Chairman.*) Do you remember the state of these places in 1849?—Yes.

3902. Has their state improved since then?—They have run a very large main drain up the centre of the street since then.

3903. Is there any other point in which you think you can see any improvement?—The flagging has all been relaid and improved.

3904. Are you intimately acquainted with any particular districts of the town, so as to be able to speak to the condition of the houses in them?—All the upper districts of the town I am pretty well acquainted with.

3905. Have you ever noticed any bad smells from the drains in the upper districts of the town?—After a period of dry weather, when wet came, I have.

3906. Have you ever noticed it in Clayton Street?—No.

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3907. What parts of the town have you noticed it in?—All the sewers smell after a series of dry weather; that I attribute to the want of flushing the drains. An accumulation takes place.

3908. An accumulation takes place in dry weather, for want of flushing?—Yes.

3909. And then, when the wet weather comes, what is the effect?—It stirs it up.

3910. Have you any further observations to make as to water, or as to gas, or as to the state of the houses in any part of the town, or as to any point bearing upon our inquiry?—The only statement I have to make is that I found diarrhœa, approaching towards cholera, more prevalent in the open and airy parts of the town than in the confined districts. Take Rye Hill, for instance, which is one of the most airy and open districts in the town. I do not believe there was any place where it existed to a greater extent.

3911. Did cholera also exist in those districts to the same extent and proportion?—Yes. Immediately behind Rye Hill there are a number of new houses.

3912. Do you know what the state of that property is?—I do not. They are houses erected recently. In Rye Hill they are first-class houses; at least, they have the appearance of being so. I do not know as to their building or construction.

3913. To look at them, you think they ought to be in a pretty good state?—Certainly.

3914. (*Mr. Town Clerk.*) There is a considerable descent from them?—Yes.

3915. (*Chairman.*) Is there any other point?—There is only one other point which I think has been omitted, and that is with reference to making the returns of the cholera patients or cases. In 1831 there was a daily return made by all the medical men of every case that occurred. Now, on this occasion you had only the cases attended by the parochial officers and assistants, which gives a much larger proportion apparently of deaths to cases than really existed. You have no returns from the private practitioners. This is the report which we had to make daily in 1831 (*producing the same*).

3916. These forms were issued in 1831 to all the members of the profession?—Yes, and returned every morning.

3917. (*Mr. Simon.*) Have you any opinion to offer on the quality of the water which was supplied here during the outbreak?—For a few months the water was not very pure, but otherwise, the water was very good in quality.

3918. Did you find any unpleasant smell or taste in it?—Not at all.

3919. Do you drink water?—I did not use it for the table, but spring water.

3920. (*Chairman.*) Did you think it requisite to dissuade any of your patients from using it?—It was of no use dissuading them when they had nothing else to take.

3921. (*Mr. Town Clerk.*) Can you assign any reason for the severe visitation of this town in 1853, compared with its light visitation in 1849?—No, it is still involved in mystery.

3922. No reason occurs to your mind?—No.

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HENRY GLASFORD POTTER, Esq., sworn.

3923. (*Chairman.*) You are one of the surgeons to the infirmary in this town?—I am.

3924. How many years have you been connected with the infirmary?—About ten.

3925. And how many years have you practised in the town?—Since 1833.

3926. Are you cognizant of the reports of the institution to which you belong, and of the dispensary and fever hospital?—Generally so; I cannot say I have read them all over. I have no doubt they are correct.

3927. Do you remember the outbreak of cholera in 1848-9?—I do.

3928. Were you pretty well acquainted with the state of the town at the time of that outbreak?—I should say that I was; having been here for many years, twenty-five, perhaps.

3929. Has your practice taken you into the poorer districts?—Yes.

3930. What is your impression of the state of the town in 1848-9, especially of the poorer districts?—They were a good deal improved at that time.

3931. By what circumstances?—By various circumstances. Cleansing had gone on to a considerable extent about that period.

3932. In consequence of the Irish fever of 1847-8?—Yes, there was a good deal done; I cannot undertake to give any particulars upon the point.

3933. What is your impression of the comparative state of the town after the cleansing consequent on the Irish fever, and shortly previous to the outbreak of cholera in 1853?—The town was in a much worse state, very dirty in the year 1853.

3934. You think that since the cleansing in 1848, it had retrograded?—I certainly think so.

3935. Which parts of the town do you more specifically refer to?—I think, generally.

3936. Do your remarks apply more particularly to one district than to another?—I have paid more attention for the last few years to the upper parts of the town than I have to the lower; but before that I held an appointment, which Mr. Rayne now holds, as surgeon to Lock, Blackett and company's lead works, which took me all over the town. There were some of the men in Sandgate, and some in Gateshead, and it gave me a very general knowledge; but since that time I have not been there so much.

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3937. (*Mr. Simon.*) Then you wil be able to speak of the condition of the dwelling of the middle classes in Newcastle?—Yes; better now than of those of the poorer classes.

3938. We have got a good deal of information as to the condition of the dwellings of the poorer classes from the Poor Law medical officers; do you think we could get better information upon those points than from them?—I think not. I think those are the gentlemen best able to give you that information.

3939. As to the dwellings of the middle classes, what should you say as to their sanitary condition?—I should say their sanitary condition was far from being perfect, owing in a great measure to the drains, and to what is very common in this town, even in the better class of houses. With very few exceptions in Newcastle, I do not know one but there may be exceptions, I should say, that every house which possesses a water-closet, or even two water-closets, has also a privy. In my own house I have two water-closets, but I have still a privy; it is common in Newcastle.

3940. (*Chairman.*) Are Newgate Street and Percy Street included in what you allude to as the upper parts of the town?—Certainly; Percy Street more especially; Newgate Street is more in the middle of the town.

3941. What is your impression of the condition of those two streets in the beginning of August 1853?—I should say they were in a very bad state. The streets, in fact, were often much dirtier than there was any necessity for, as I thought; and the state of the drains was equally bad. There was a strong stench from the top of Percy Street to the upper part of Newgate Street. There is a drain which runs across the top of Percy Street, to which the name of Bailey Burn used in former times to be given, and which runs under the Barras Bridge. It is a burn that comes down from the barracks, and afterwards goes into Pandon Dean. From that point, that burn, which I believe the Commissioners have already heard a good deal about, is a downright nuisance; the smell from that burn is extremely offensive, and at the bottom of Eldon Street, just at the head of Percy Street, there is a grate opening into it. At the Barras Bridge also there is a drain opening into it, more than one; but there is one from which the most horrible effluvium sometimes arises. A little further down there is another drain, what we call down Percy Street; though it is a slight ascent. That other drain evidently communicates with the Barras Bridge or Bailey Burn, and from that also the effluvium was most offensive. As you got down there, where the ground slopes more towards the town, whenever you got near a gully hole it was so strong that it was downright injurious to health, I should say.

3942. (*Mr. Simon.*) We have it in evidence, and as we have walked about the town ourselves, we also know it from personal knowledge, that very frequently on the gratings there would be found excrement. When, therefore, you speak of the stinking gratings, do you mean that the stench arose in that way, or that it came from within the sewer?—From within. In the upper parts of the town you may see excrement occasionally; but I should say that on the grates of which I am speaking excrement would be rather an exception.

3943. (*Chairman.*) They are scavenged daily?—They are. I do not recollect to have noticed excrement there.

3944. (*Mr. Simon.*) So that the stink to which you refer came from within the sewer?—Certainly, and there has been at times a steam arising.

3945. (*Chairman.*) In cold weather you have seen it, have you?—It was in the month of August; you cannot call that cold weather.

3946. Have you occasion to pass along Clayton Street often?—Yes, all along Clayton Street.

3947. Have you ever noticed anything similar as regards the drains there?—I cannot at the present moment call it to mind; but I should say that that smell is pretty general throughout Newcastle. In Northumberland Street too there is a drain opposite Savile Row, which is sometimes very offensive, and from which I have many times seen a sort of steam arising.

3948. In hot weather as well as cold?—Throughout the year you notice it.

3949. Generally?—Generally; at that time more especially. Just before the cholera broke out there was a very unpleasant smell throughout the whole of Newcastle; and even, in fact, where I live, above the Barras Bridge, and in by far the healthiest part of Newcastle, above Jesmond Terrace. I went there on account of its being the most healthy part, and I have no hesitation in saying that it is so; even there we were very much annoyed with bad smells; and the smell in that case seemed to me to arise from some decaying vegetable matter. I sought for it in all directions, but could not find what it was.

3950. Are you sewered up there?—We have very perfect sewerage, so far as it is ever perfect here.

3951. (*Mr. Simon.*) You say that generally in Newcastle, even where there are water-closets in houses, there are also privies?—I believe with very few exceptions you will find that the case throughout the town. I know of none where it is not the case.

3952. We find in Mr. Grainger's houses a considerable portion in which there are two water-closets only?—In Mr. Grainger's houses there is no yard, and therefore no privy. I forgot that when I was speaking about the privies. I was rather referring to the upper part of the town.

3953. When you say that Mr. Grainger's houses have no back yards, are we to understand that they are deficient in back ventilation?—Necessarily so. It depends upon the situation in which those houses are placed. For instance, the houses around the market, and the houses immediately around the Central Exchange, of course have no yard.

3954. (*Chairman.*) They have through ventilation only in so much, if any, of the house as overtops the height of the market or Exchange?— Necessarily so.

3955. (*Mr. Simon.*) And in that part of the house are there always windows?—I believe there are; in fact, there are what we call borrowed lights in various parts of the houses, and windows, of course, in the upper part.

3956. Have you any knowledge of the condition of the sewers beyond that sort of evidence which your nose gives you from time to time?—I have many times known the side drains from the houses to the sewers blocked up. In passing through the streets, and more especially down Percy Street, I have frequently seen them cleaning out the drains, from which I could perceive that they had been blocked up, and that the sewerage was very imperfect there. They were getting out immense quantities of black, filthy-looking matter.

3957. Can you mention any other streets in which you have seen the drains undergoing that process?—I think I have seen it in several other streets, but I cannot exactly at this present moment name the streets. I have seen it done in various parts of the town.

3958. (*Chairman.*) Was not there a remarkable state of the atmosphere here during part of last summer?—There was, and more especially about the time of the cholera. It was in a heavy state, and we had here an enormous quantity of the fly called the cholera fly.

3959. I have heard it stated that you did not have a thunder-storm the whole of the summer?—I cannot at the present moment state whether we had or not.

3960. Are you sure that this smell, which you perceived so much in the upper parts of the town last summer, was certainly not owing to any ill conditions of the atmosphere, but distinctly to the state of the sewers?—I should think that the state of the atmosphere, of course, had something to do with it, in so far as that these sewers might not have given off such exhalations but for the state of the atmosphere. I can easily imagine that the then state of the atmosphere would tend to increase the decomposition going on in those sewers; and, of course, the greater the amount of decomposition the greater the amount of noxious gas given off. Then, again, it was a dry year, and the town, as you are well aware, was not at that time very well supplied with water, consequently these sewers were not flushed. There was not a sufficient quantity of water in them to carry off the vegetable and animal matters in them; and then again the state of the drains, although of course I cannot speak as an engineer, was anything but perfect. They are flat-bottomed drains, and the stones are very rough; the bottom and sides are very rough.

3961. (*Mr. Simon.*) Of the house drains?—Yes, I am speaking of the house drains; consequently they retained a considerable amount of matter; and that, with the dry state of the atmosphere, the want of rain, want of flushing, and the heat of the atmosphere, would, of course, all tend to produce decomposition, and give out that smell.

3962. (*Chairman.*) You feel pretty sure that the smells you allude to did come in one way or another from the interior of the drains;—Except the smell to which I have alluded at my own house. I do not think that did; but that I think wasfrom the decompostion of vegetable matter.

(*Mr. Mason.*) There were some fields in that neighbourhood very offensive. There were cabbages and a turnip-field; and there were a great number of rotten turnips and rotten cabbages in the lane leading down to the cemetery. It was excessively offensive; there was more offensive smell I think in that locality, to which Mr. Potter has referred, than in any other part of the town. It struck me very much and I investigated it.

3963. (*Chairman to Mr. Potter.*) Did this smell, which you perceived last year, suggest to you the idea of gases which would be prejudicial to health?—Certainly; more especially that odour which came from the drains. That was undoubtedly prejudicial to health.

3964. (*Mr. Simon.*) Do you know whether any experiments were made here as to the quantity of ozone in the atmosphere?—I do not.

3965. (*Chairman.*) And you think that this state of the drains arose from the defective construction of them, and from the want of water to flush them?—Yes.

3966 (*Mr. Simon.*) We have heard a good deal of the nuisance created in at least two parts of the town by water-courses which have been converted into sewers, viz., by the Pandon Dean, and by a burn which crosses Gallowgate and Mortimer Court. Are there any other such, besides these, of which you know?—There are other burns.

3967. Is the Skinner Burn which runs down near the Forth Banks, also converted into a sewer?—Yes; all these burns are converted into sewers. Of the Skinner Burn I cannot say that I can give much information

3968. As respects either of the other two what can you state?—The Lort Burn, which runs down through Mortimer Court, is a sad nuisance; it gives off exhalations of a horrid character, and it is extremely detrimental to health. It is uncovered. It passes through Mortimer Court, and there inundates some of the rooms. There is a room there, which I saw not very long ago, and which I had seen before, which is at all times flooded; and

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the proprietor of the court, who went with me into it not very long ago, told me that he was obliged to employ a man sometimes for a week together to pump the water out; he has a pump put there for the purpose of removing the water which passes from the Lort Burn into it. The fact is, the room is below the level of the Lort Burn, and in spite of all that can be done the water seems to find its way through. I believe that the corporation have done a good deal there in endeavouring to prevent the passage of the water. Near this very room again is a necessary, which is a mere piece of wood with a hole in it put over the burn; and when I saw it, there were large quantities of excrement lying there, and that very near the other place. I find that in Mortimer Court there were four deaths; and very near that there is another court called Hall's Court, in which one of the houses situated on one side of the burn has a necessary just above it; and in that very house, where the necessary is, a woman came in during the cholera who only intended to remain a few hours in the house, but she was seized with cholera and died there.

3969. (*Chairman.*) What was the state of the courts and entries running off Percy Street, on the 31st of August 1853?—I do not know that I was there on the 31st of August 1853, but I have been there occasionally. They are always in a bad state; bad, as regards accumulations of filth of various kinds.

3970. On the surface?—On the surface and in ash-pits too.

3971. (*Mr. Simon.*) Are you aware of any regulations which have been made and enforced for the periodical cleansing of privies and ash-pits?—No, I am not aware of anything of that sort.

3972. (*Chairman.*) Did you form any opinion as to the connection between filth and cholera?—I did.

3973. Will you favour us with it?—I think that the increase and virulence of cholera depends on the state of filth, and on the want of proper sanitary arrangements and regulations.

3974. (*Mr. Simon.*) What do you conceive to be the chief sanitary defects of the town?—The want of proper drainage, and the want of proper scavenage; those are the two principal, and the want of proper cleansing, of course general cleansing of the town.

3975. And as to the dwelling-houses of the poor?—Houses, which were formerly good houses, are now occupied by a very poor class of people in the lower part of the town; and those houses of course have now got to a very dilapidated state in many places, and have become unfit in some places for human habitation.

3976. (*Chairman.*) Do you know the number of the population in that Mortimer Court where you say there were four deaths?—No, I do not; I have here a table which gives the number of houses and deaths in Northumberland Street.

3977. Seventy-seven houses in Northumberland Street, and five deaths?—Yes; these are taken from the registrar general's account.

3978. Thirteen houses in Mackford's Entry or Court, and eight deaths?—Yes.

3979. (*Mr. Simon.*) Is Mackford's Entry or Court a decent place?—No, quite the contrary.

3980. Is it, in your judgment, fit for human habitation?—I would not go quite so far as to say that it is altogether unfit for human habitation. Drains have been lately put in, which is a great improvement; and they have stench-traps apparently attached to them.

3981. Since the cholera, you mean?—Yes. It seems pretty well drained now; but there is a want of proper privy accommodation. There are privies down the yard. The houses are only on one side. I have gone into several of them, and I find that there are six tenants generally in each house; that is to say, provided all the tenements are occupied. If we take four to each family, it would make 312, or, taking five to each family, it would give a population of 390 to the eight deaths; that is to say, if every house there was occupied.

3982. (*Chairman.*) In Vine Lane I see there were seventeen houses and eight deaths?—Yes, Vine Lane contains seventeen houses; and, in looking over them, I think there are about seven houses occupied by single tenants, or families. I may perhaps be wrong as to the exact number, but I think so; and there are about nine houses having two tenants in each. Then there is one house which contains, they told me, six tenants. Now, taking that population at four for each family, which, perhaps, is a low computation—but it is a street where there are very few children, you very seldom see children about there—it would make a population of 124, and at five for a family it would make a population of 155; and out of that number we had eight deaths. Now, the position of Vine Lane, I think, bears a good deal upon the question. By referring to the map, you will perceive, on the south side of Vine Lane, that there is a street or place called Ridley Place, that contains twenty-eight houses. In that street, although there were some cases of diarrhœa, there were no deaths. At the back of these Ridley Place houses, towards Vine Lane, are their yards, with privies and ash-pits. I am not aware that any one of those houses has a water-closet. Then we have Vine Lane, which is not very well paved, and which is at a lower level than Ridley Place, though not to any great extent. Then, on the other side of Vine Lane, behind several of the houses, at least, there are small yards with necessaries and ash-pits. The yards are very small. I do not know that all of them have necessaries, but a great number of them have. Then, again, behind these yards and privies there is a small lane or passage, and immediately behind that are the yard and

privies belonging to another row of houses, called St. Mary's Place. So that we have on each side of Vine Lane two streets; Ridley Place, containing twenty-eight houses, where there were no deaths, and St. Mary's Place, containing, I think, fourteen houses, where there were no deaths either; while in Vine Lane, between these, eight deaths in seventeen houses.

3983. (*Mr. Simon.*) Vine Lane is between their two rows of privies?—It is between three, if I may so express myself; because, on the one side there are the privies of Ridley Place, and on the other there are the privies belonging to Vine Lane, and the privies belonging to St. Mary's Place; so that it lies, as it were, between three rows of privies. Now, there is no drain that I can make out, and I have made some inquiry, along Vine Lane.

3984. (*Chairman to Mr. Town Surveyor.*) Is that so?—There is one in the back part. I believe there is none in Vine Lane itself.

3985. Is there any drain for fœcal matters from either of these three rows of privies?—I think there are some drains from some of the yards.

3986. (*Mr. Simon.*) But not connected with their privies?—I cannot answer to that.

3987. (*Mr. Town Clerk.*) But there is a drain behind Vine Lane which is d ep enough to receive it?—Which is deep enough for anything.

3988. (*Chairman.*) We understand the houses to be drained for surface water, but that there is no drain whatsoever for the objectionable fœcal matters?—Whether the houses drain into that I cannot say.

(*Mr. Potter.*) I made inquiry, but could not find one there.

3989. (*Chairman.*) You mentioned that one of those houses in Vine Lane held six tenants?—Yes.

3990. That nine others of them held two tenants, and that seven of them held but single tenants?—Yes.

3991. Do you know whether any of the mortality there occurred in the houses where there were single tenants?—I cannot say; but mortality occurred in several with two tenants.

3992. Considering the high mortality of Vine Lane, in connection with the comparative immunity of Ridley Place and St. Mary's Place on either side, should you think that it was the influence of those three rows of privies, which aggravated the state of things in Vine Lane?—I think so. Some years ago, in Vine Lane I had one or two cases of ague, which is not frequent now in Newcastle; and I attributed it to the dampness of Vine Lane, it being a little below the other houses.

3993. (*Mr. Town Clerk.*) Is not it a very old property there?—It is a property which belongs to the charity of St. Mary Magdalen. It was a hospital, which was established, I believe, by Henry the First, for the cure of leprosy. Some people complained to me very much of Vine Lane, and applied to me to go and examine it at the time of cholera.

3994. (*Chairman.*) Is there any other place to which you have paid attention?—Gallowgate is a place to which I paid some attention; and I found there the mortality rather high. Gallowgate is in a very dirty, filthy state.

3995. (*Mr. Simon.*) Do you know anything about the presence of nuisances there?—I have seen them frequently in passing, and more especially at the part called Back Lane; there are many nuisances there.

3996. (*Chairman.*) What nuisances have you noticed in Back Lane?—A great number of cows are kept there. Back Lane is curiously situated. On each side the ground rises, so that it is favourable for retaining the moisture of any nuisance. The ground is of that peculiar nature there.

3997. In a kind of hollow?—The street is in a kind of hollow. But as to what I call nuisances I would mention one in particular; they clean tripe there, on the right hand side as you go up from Gallowgate. The earth there is saturated with filth from tripery, and from various middens, or depots of filth which arise from the making of tripe and various things.

3998. And there the mortality I think was eight?—Yes.

3999. Have you any notion in how many houses that mortality may have occurred?—I really do not know that. There is one point, which strikes me just now, which I may mention, and which seems at first to be favourable to the view taken by some gentlemen, viz., that cholera may occur in very healthy places. I have already stated that I live in what I consider the most healthy part of Newcastle, Jesmond High Terrace. There are only five houses in that row; some of them are occupied by the parties to whom they belong; they are remarkably well built and stand very high. I live in the centre house; we have a drain passing through the yard, which is four feet deep. We are well supplied with water, we have a capital pump, and water from the Whittle Dean Company as well; and we have a moor in front of us, and a garden and open fields behind; so that the position is highly favourable in a sanitary point of view: and yet in that row of five houses there was one death from consecutive fever from cholera. It occurred next door to myself. But the sanitary condition is not quite so perfect, as a person might in the first instance imagine. Our drain there (perhaps you might call it a sewer) runs down through the yard; and the drains from the houses go

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into it of course. That sewer runs down into the drain to which I have already referred, the Barras Bridge or Bailey Burn, which has become very much fouled, and is as has been stated a great nuisance. It is open below the Barras Bridge ; a little below the church it is open.

4000. Is it open anywhere near you?—Not very near us ; but at certain times of the wind, or in certain states of the atmosphere, the most unpleasant odours arise from these drains. It seems to come up, as far as we can trace it, in consequence of the connection of our sewer with that Bailey Burn sewer, and of the wind getting at some part of that sewer, where it is open below, and so blowing the gas up into our houses. We have in the yard stench-traps ; but the drains from the water-closets and from the house, all open, of course, into the sewer, and it seems to come up these, and make its way in some manner into the houses, and at times it is very offensive. We have had a great deal done to endeavour to find out the cause.

4001. (*Mr. Simon.*) And the stench is perceived in your neighbours' houses as well as in yours?—Yes. I have two water-closets, and in one of them, although there is a kind of trap at the bottom (perhaps there may be some imperfection), it seems to blow up there, and come through some part of the tube of the water-closet into the house. We cannot find out how it is ; but it annoys us very much. Then again, although there is this drain behind, which is deep, yet I find that the trees and the plants are gradually sickening. Many plants, which grew well when I went into that house twelve years ago, will hardly grow now. The poplar trees which are in front of the houses do not grow in that healthy way in which they ought to grow; but there is a willow which thrives, and that I attribute in some degree to the wet clay. We are upon the clay, and it must contain a good deal of water; and possibly the roots find their way to the wet, and the willow thrives while the poplars do not. So that, taking those two matters into consideration, I do not think our sanitary condition is perfect ; and at the time when the cholera occurred, we had this odour from the decomposition of vegetable matter, which I have already spoken of ; and that, together with the odour which arose from these drains, was quite sufficient in my mind to account for the case which occurred, more especially as the gentleman who died had his office in Percy Street, a street which I look upon as a very unhealthy one. There were nine deaths there from cholera. He was there every day and only came home in the evening to his own house, or to dinner.

4002. (*Chairman.*) Have you any further instances of this kind to draw our attention to?—I have the number of the deaths in High Friar Street, seventeen. The sanitary condition of High Friar-street is very bad. It consists of small yards, having houses looking into them. Many of those yards have no privies and ash-pits, and are in a filthy state. The drainage there is very imperfect.

4003. (*Mr. Simon.*) There is a large population along there?—Yes ; because that street consists of a number of court-yards on each side.

4004. Some hundreds, probably?—Yes ; there must be that.

4005. Do you know of any case in which cholera occurred in any house or place presenting no sanitary flaw whatever?—No ; certainly not. Nor do I believe that cholera would occur in a place of that sort.

4006. Do you believe your own place, for instance, to be as favourably circumstanced as any in the town?—If I did not, I should leave it. I believe it to be by far the most healthy part of Newcastle ; and that the sanitary condition there is as perfect as you will find it in any part of Newcastle.

4007. Should you consider Mr. Grainger's property to be in a first-rate sanitary condition?—I should not. The houses, in many cases, have no yards. They are blocked up behind. There is a want of proper ventilation, and I think Mr. Grainger's property is defective in water-closets. For very large houses, containing a number of people, there is often but one water-closet, perhaps at the very top ; and sometimes it is very dark, and so placed that the people many times complain of it. It is not kept clean, and it becomes very often a nuisance. That may, in some degree, be owing to the habits of the people.

4008. Do you think that that would be the case with any considerable number of Mr. Grainger's first-class houses?—No ; I do not speak of the first-class houses. I am speaking of tenemented houses. I lived in one of Mr. Grainger's first-class houses, in Eldon Square, for three years.

4009. Was it well drained?—The draining is very bad there. It is too flat. It was so bad that I was obliged to have the flags in my kitchen taken up. It rotted the flags.

4010. Have you reason to believe that that, or any similar fault, belongs to the greater portion, or the whole of Eldon Square?—I have ; I should say almost the whole of it. I lived in Eldon Square three years, and I know that the complaints were very great. It is flat, and there is a want of fall there.

4011. Was that one of Mr. Grainger's building?—It was; in fact, I was obliged to leave the house in consequence of the nuisance. The water-closets are all at the top of the house, and not very well constructed. They were supplied with rain water, and I have seen, when they were obstructed, that the soil has come out, and even run down stairs. We have had some fearful messes. In fact I was obliged to leave the house in consequence ; my health suffered.

4012. (*Chairman.*) What is the condition of Liverpool Street, in which there were eight deaths?—Extremely bad; there is dirt and filth, and very bad drainage, drains which are very shallow, very badly constructed, and in a broken state. Liverpool Sreet goes out of Percy Street. I believe it also belongs to the charity of St. Mary Magdalen. There is another property again which also belongs to that charity, the Spital Tongues, in which I know there were at least twenty-four deaths. It may be leased to some one, but I believe that it belongs to the charity.

4013. (*To Mr. Town Clerk.*) Is it so?—(*Mr. Town Clerk.*) Yes, the reversion belongs to the hospital, but it is leased for ninety-nine years.

4014. (*To Mr Potter.*) Is there any other point with reference to the condition of the town as regards cleanliness?—I do not know that there is.

4015. Have you any opinion to offer as to the state of the water in the course of last year?—The water was certainly very bad; and I must say, in spite of what has been said in evidence, that in my house certainly the water stank; but I must at the same time state that I heard Mr. Main say that this might depend upon the cistern. Now, it is right to state that the water comes into a cistern in my house, and it was in the cistern where I noticed it particularly.

4016. (*Mr. Simon.*) Is the cistern covered?—Yes, it is within the house. It was within the house that I noticed it; there was a considerable collection.

4017. Was there a large deposit in the cistern?—Yes, at one time, not to any extent, but there was a yellowish deposit from the water.

4018. Is it in a room?—Not an inhabited room; it is above the water-closet in fact.

4019. It is in the water-closet?—It is in the water-closet. It is a high place. I never noticed it smell before, and it certainly never has done so since. I must say, that the Whittle Dean water, when we have the real Whittle Dean water, is very good. I have not the slightest complaint to make of it; it is a great improvement to what we had before; but this was the Tyne water which we had.

4020. (*Mr. Town Clerk.*) From July to September last?—From July to September.

4021. (*Chairman.*) Have you any notion as to any effects which it may have had upon the public health?—I have no doubt of that, because I have known instances where, on taking that water, diarrhœa ensued, and ceased on giving it up.

4022. (*Mr. Simon.*) Have you known several cases of that sort?—I would not say several; two or three cases certainly. I have not the slightest doubt in my mind that that water caused the diarrhœa.

4023. (*Chairman.*) More or less?—More or less; there was a great deal of diarrhœa prevalent at that time. I had diarrhœa, who never tasted the water. The water of course was not entirely the cause of the diarrhœa, but I looked upon it as the cause in some cases.

4024. (*Mr. Simon.*) Can you speak positively as regards your own cistern, that no impurity could have got into it except through the supply pipe?—I should say so.

4025. That it was covered completely?—Not close down upon the top; it is open at the top, but in a room very near the ceiling. As soon as the water became purer, the smell left; nor is there at the present moment any smell in that cistern.

4026. (*Chairman.*) You have had it cleaned out I suppose since that time?—I did not have it cleaned out for that purpose, but it gradually washed itself purer as the water came into it. I thought of having it cleaned out, but just at the time an improvement took place in the water.

4027. Are there any other remarks which you have to make with reference to the water?—I do not know of any; I have nothing to say against the Whittle Dean water. The river water I look upon as very bad, and I do not see the difference in taking it when it ascends the river or descends the river. I object very much to the use of the river water at all. I can easily believe that the Whittle Dean company only pumped the water when they had no other water to pump. The town of course could not be without water, but, at the same time, I believe that that water had an injurious effect upon the public health.

4028. With reference to the conduct of the officers of the Board of Health, have you anything to state?—In the first place, I should say that I feel myself placed in a delicate position rather, in having to make any charge against gentlemen who have left, and especially after having heard them offer every explanation which they apparently could; but as a good deal has been said on the subject, it is only right to state, in the first place with reference to Dr. Gavin, that I was prepared, at the opening of this Commission, and up to the time he gave his evidence, to bring various charges against him; but really, after hearing the very manly and straightforward manner in which he gave his evidence, and considering the peculiar position in which he was placed, I must say I felt my charges fall to the ground, and my feeling now with regard to Dr. Gavin is, that under the peculiar circumstances in which he was placed, he did his duty. I think it right to state that I was one of those who blamed him perhaps as much as anybody, though of course I did not do it so publicly; but still I thought that Dr. Gavin was to blame, and I am very happy now to state more publicly than I blamed him that I acquit him. I believe that he did as much as he could under the circumstances in which he was placed. So much as to Dr. Gavin. With regard to Mr. Grainger, I am sorry to say the case is different. Mr. Grainger arrived here at a time when there was no great amount of cholera; there

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had been a few cases, and the cholera was then steadily but rapidly increasing. I waited upon Mr. Grainger, in company with Mr. Furness and Dr. Robinson on the Saturday, the 10th September. We had all of us at that time seen cases of cholera, and were prepared to give him any information, and I must say that, though he treated us with courtesy, as Mr. Grainger will always do, for he is a very amiable man, yet still my impression was that Mr. Grainger did not believe what we stated. He seemed to me not to credit the evidence we gave. His questions were so frequently repeated that when we came away I made the remark, "You may depend upon it Mr. Grainger thinks we were humbugging "him;" that is the impression I had. Then where I conceive that he acted wrong was this: instead of calling the profession together, which he ought to have done under these circumstances, he attended, I think very improperly, to some irrelevant remarks made by one or two members of the profession. Of course, in such a large body as the profession in Newcastle you will have differences of opinion, and I think he attended improperly to the suggestions or observations of perhaps one or two members, and let them deter him from calling together the general body of the profession. Still I hold that he was bound to call together the medical men attached to the principal charities in this town. Now there, at any rate, he would have had harmony, because some of them belong to one of the medical schools which are making so much noise at present, and some to the other; but for all that, we act most harmoniously, it does not interfere with our conduct or friendship in any way whatever. Therefore there was no excuse for Mr. Grainger not calling together the medical men attached to the medical institutions and to the principal hospitals and charities. Neither Mr. Greenhow, nor Dr. White, gentlemen who took an active part in the former cholera, were consulted, and I think that this neglect (I must call it neglect in that particular) tended really to produce a greater amount of mortality. It is my opinion that if proper arrangements of that kind had been made, lives might have been saved.

4029. (*Mr. Simon.*) Is it your view that Mr. Grainger's duty here extended to more than assisting the guardians to organize arrangements for the poor; did it, in your opinion, extend to organizing methods of cure or prevention for all classes of society?—I do not know as to organizing methods of cure, but certainly as to organizing methods of prevention. When Mr. Grainger came down here, he was looked up to as a man in authority; we necessarily looked up to him; and as he was here, and did nothing, he paralyzed our movements. We could not assemble together well. Supposing Mr. Grainger had not arrived, we might then have met together; some members of the profession might have called the others together, as was done in the year 1831.

4030. (*Chairman.*) Were you present at a meeting of the profession which was called together by Dr. Gavin?—I was not present at that meeting of which Dr. Gavin complains. There was at that time a good deal of irritation. I felt that the profession had not been treated in a courteous manner. Had I been present I, perhaps, might have expressed myself in terms to that effect.

4031. Are you aware that, at that time, it was difficult to get any two members almost to act together?—When Dr. Gavin came down here, everything was in confusion. I intended to go to that meeting, but was called away. It was at an unfortunate period; it was too late.

4032. (*Mr. Simon.*) Do you think that it would have been an unreasonable view, if Mr. Grainger had taken it, that he was called upon only to act for the poor, to act only with the guardians; and therefore that it was his business only to confer with their officers, and that in what else related to the health of the town, it was the business of the medical gentlemen resident in the town to act each for himself in his individual capacity: do you think that that would have been a wrong view for him to take?—I can hardly conceive that the Board of Health is established for the mere purpose of attending to the poor; I should think it was for attending to the rich and the poor. If it be so, I should certainly think it a defect, and that the Board of Health ought to extend its operation.

4033. Of course I am not offering an opinion on the matter. I only want to draw out exactly what your views are?—I am not sufficiently acquainted with the construction of the Board of Health to say. If the Board of Health is so constructed that the parties whom it sends down here or to any other place, during the time of an epidemic, can only look after the poor, then I think there is some defect in the construction of the Board of Health. If so, then of course it excuses, in some measure, Mr. Grainger. Certainly the poor ought to be considered, but they are not the only parties.

4034. Are you aware that, when the officers of the Board of Health come as plenipotentiaries in these affairs, their credentials are addressed merely to the boards of guardians?—That I can easily imagine, and to the official bodies, but still I think they ought to go a little beyond the strict line of their duty; and I cannot help bearing in mind that private instruction to which reference has been made.

4035. Do you know that there is such an instruction?—Mr. Grainger seemed to have forgotten it, but Dr. Gavin said that there was. In fact, I was aware of it before.

4036. (*Chairman.*) Is there any other point?—No, I do not think there is. I look upon it that that matter of calling together the medical men is a matter of considerable consequence, because we may have the cholera again, and have an officer of the Board of Health come down here, who may not call together the medical profession, and it may be

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productive of mischief. I, therefore, beg to call the attention of the Commissioners to that point, because if it be owing to a defect in the constitution of the Board of Health, the sooner that is known and remedied the better.

4037. (*Mr. Simon.*) You believe that, if the profession had been called together, more effective means might have been organized for the protection of other classes than the poor?—Certainly, and of the poor too, because the medical men so called together would have acted in concert with the proper authorities, and would have supported the board of guardians and their officers. They would have acted in unison and harmony. I speak with reference to future attacks. I think it of consequence, because such a thing may occur again.

4038. (*Chairman.*) You would be glad to know whether the medical profession are to stand upon their own feet, and take the steps they think requisite in respect of other classes besides the poor, or whether they are to expect assistance from the Board of Health?—Decidedly; otherwise we are in an embarrassing situation, and that we felt during Mr. Grainger's presence here; not that I wish to bring any charge of actual and wilful negligence against Mr. Grainger; quite the contrary. I believe him to be one of the most amiable and gentlemanly men in the world; but I do not think that he acted in a proper way, considering the circumstances of the case.

4039. (*Mr. Simon.*) You of course recognize that Mr. Grainger could not address the profession with authority upon this matter—that it was only to the board of guardians that he could speak with any authority?—There would have been no occasion for authority if he had publicly or in any way called the medical men together.

4040. (*Chairman.*) It is your impression that there is a recommendation or instruction from the Board of Health to their officers to call the medical profession together?—Yes; Dr. Gavin stated so in his evidence.

4041. (*Mr. Simon.*) Making allowance for the fact of Mr. Grainger having acted differently, and having confined his exertions to the board of guardians, and communicated especially with their officers, do you believe that within that sphere he did all that it was possible to do?—Within that sphere I believe he did all that was possible; what I blame Mr. Grainger for is in not going beyond that sphere; he narrowed his sphere too much.

4042. Is there any other point?—Not that I ama ware of.

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4043. (*Chairman.*) You are a licentiate of the college of physicians of London?—Yes.

4044. And physician to the Newcastle eastern dispensary, and lecturer on the practice of medicine?—Yes.

4045. How many years have you practised in Newcastle?—Eight years.

4046. How long have you known it?—I have known it more or less since 1836.

4047. Have you paid attention for any number of years to the subject of sanitary improvements and to the sanitary state of the town generally?—Since the commencement of 1847.

4048. Did you become a member and honorary secretary of the Newcastle and Gateshead Sanitary Association?—At the commencement of 1847 I published a lecture on sanitary reform, which I delivered on the 10th of February in that year before the Literary and Philosophical Society of this town; and afterwards I called upon a number of gentlemen, and in a few weeks we formed a sanitary association. I put in this lecture as evidence.

4049. In this lecture or pamphlet, after stating that "the epidemic diseases, which "had committed such fearful ravages during the past year, causing the proportion of "deaths to be as high as one to every twenty-five inhabitants of the town, were still "haunting certain districts with undiminished virulence," you proceed to enumerate, as absolutely requisite for the preservation of health, the following physical circumstances: light, pure air, pure water, regular exercise and wholesome food?—Yes.

4050. Then, after adducing various instances and arguments in proof of the necessity of light to health, you proceed to speak of "the residences of the poor" in this town as follows. "On entering many of these houses the visitor is at once arrested in his "progress by finding himself in total darkness; so much so, that in the middle of a "bright clear day he is compelled to trust solely to the sense of touch in endeavouring to "reach the staircase; and having surmounted this difficulty and made his way into the "apartments occupied by the different families in the house, he will, in the majority of "instances, find himself unable to read any common print at a distance of more than "two feet from the window; and when it is considered that in many of these courts the "space between the opposite houses is little more than four feet, and that not unfrequently, "particularly in the chares or lanes leading out of Pandon or the quay, they are "overshadowed by huge warehouses, the statement will perhaps be rendered more "intelligible to persons unacquainted with these localities?"—Yes.

4051. Then, in allusion to the impurity of the atmosphere you say, "Perhaps in no "part of the kingdom is more inconvenience and discomfort experienced from the smoke "nuisance than in this town," and then you go on to explain and illustrate the pernicious "effects of that nuisance upon the public health?—Yes.

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4052. As another cause of the impurity of the atmosphere you allude to "imperfect ventilation," as arising from "the existence of blind courts, or narrow lanes closed at one "end, so that the passage of a current of air through them is a physical impossibility;" and you add, "I need scarcely say that scores of such courts exist within the precincts of "the town, many leading out of the most fashionable streets?"—That is so.

4053. Then you allude to the impurity of the atmosphere arising from overcrowding, or from "the disproportion between the size of a room and the number of its inhabitants;" mentioning, "that the inspectors of prisons in England recommend not less than 1,000 "cubic feet for every prisoner, as being essential to health;" a cubical space almost as great as that of many rooms in this town, in which whole families and sometimes more than one or even two families at a time both live and sleep; and then you say that "such hot-beds of disease are very common in Sandgate, in the neighbourhood of the "castle, and in the courts leading out of Newgate Street?"—Yes.

4054. Further you allude to "the injudicious construction of dwelling-houses and work-shops," and also to "the ignorance and apathy" of the inhabitants as additional causes of imperfect ventilation and pollution of the air?—Yes.

4055. Afterwards you observe: "But the atmosphere of large towns also contains "many injurious substances derived from other sources than the pulmonary exhalations "of its inhabitants." "The first circumstance which here claims our attention is the "accumulation of animal and vegetable refuse in the public streets, where it slowly "decomposes; emitting during this process most offensive and noxious effluvia;" and then, with special reference to this town, you state "It is true that the chief thoroughfares "are generally kept tolerably clean; but the narrow lanes and crowded courts, where "this evil shows the greatest tendency to develope itself, are never touched by the "scavenger. In many of these places, indeed, ashes and dirty water are systematically "deposited within a few feet of the entrance into each house; and this, not only in "those crowded parts of the old town where dirt and misery have existed for centuries, "but in streets which have not been inhabited for more than two years. Nor is this "filthy and unwholesome custom justly chargeable on the poor inhabitants of the "localities. They urge, and with reason, that they have no accommodation; and that, "when any receptacles for these matters are provided, they are generally insufficient in "size, and being soon filled remain for weeks unemptied?"—Yes, that is so.

4056. "The next cause of atmospheric impurity," to which you refer, "is the want of "proper drainage" and of adequate paving. On this head you say, "Many of the older "streets, indeed, are in this respect quite as deficient as those of the unimproved conti- "nental cities. Open gutters in their centre, arranged without any regard to the "inclination of the ground, abounding in deep holes and frequently obstructed by deposits "of mud, constitute the sole provision for the discharge of the offensive fluids constantly "escaping from the adjacent dwellings. In the recently built districts to which reference "has just been made, the state of things is still worse; for as the streets are neither "paved nor furnished with drains, the decomposing substances become trodden into and "mixed with the clayey soil, so as to form a putrefying mud, from which, under the "influence of a summer sun, the most deadly vapours are constantly eliminated?" —Yes.

4057. But I see you go further and state that, "In situations where subterranean "drains do exist, their arrangement and shape are unfavourable to the rapid discharge of "their contents, and the latter becoming stagnant in their interior, undergo decomposition "and give off a variety of noxious gases, which find a ready vent through the numerous "numerous drain or gully holes opening into the streets?"—Yes.

4058. Subsequently you state, "In speaking of the injurious effects arising from the "neglect of drainage, I have partly anticipated the consideration of another evil, viz., "the absence in the dwelling-houses of the poor of certain indispensable conveniences, as "well as of pipes for the discharge of dirty water. The complaints of labouring men "and of their families on these heads are very numerous and distressing. It is impossible "to converse with them on the subject without hearing accounts of hardships and "privations, the infliction of which no plea of economy can justify. Women having "families to wash, cook, and provide for, and occupying rooms on the third or fourth "storey, are compelled to carry all their dirty water down two or three sets of dark "crooked stairs, in order to discharge it into the street. In some instances advantage is "taken of their proximity to the roof to pour it into the rain-water pipes, and the latter "soon becoming choked by the deposit of solid mud, the offensive liquids overflow and "trickle along the walls of the house, rendering them at once damp and pestilential?" —Yes.

4059. You also say, "The filthy state of every lane and bye street, moreover, shows "the practical inutility of the laws now in existence against the commission of nuisances, "while it must be evident that the rigid enforcement of those laws would, in the present "state of things, be an act of intolerable persecution, and that the only effectual remedy "for these disgusting evils is to do away with the necessity for their continuance?" —Yes.

4060. After that again you allude to the sources of putrefaction and disease arising from slaughter-houses and knackers' yards, to the atmospheric impurities arising from piggeries and common dung-hills in densely populated districts, and from the practice of intramural

interment, as also to the acrid and offensive fumes copiously discharged from alkali-works, soaperies, glue and Prussian blue factories, tanneries and lead-works, of which you say, "perhaps no town, for its size, possesses more than Newcastle?"—Yes, that is so.

4061. And then you state that of "the 1,239 additional deaths, which had occurred "during the past year, you were justified, you thought, in assuming that at least three-"fourths of them arose from those atmospheric poisons which you had been engaged in "considering?"—Yes.

4062. As the works of the Whittle Dean Water Company have come into operation since this lecture was published, I need not advert to your remarks on the question of water, as they would not now be so applicable; nor need I ask you about the results of want of exercise, or of consuming unwholesome food?—No.

4063. Do you see any reason now to doubt the accuracy of the views and statements in this lecture; or do you, generally speaking, entertain the same opinions still?—I see no reason to alter those views and opinions, generally speaking.

4064. Can you, as secretary to this Newcastle and Gateshead Sanitary Association, give us any idea of its proceedings?—Yes; the proceedings during the first year are chiefly related in this report. The objects are also mentioned, and we endeavoured to carry out those objects as well as we could. I would beg to put this report in evidence. In it there are two reports of the sub-committees of the association, one describing the sanitary condition of Pipewell-Gate in Gateshead, and the other that of Sandgate in Newcastle.

Extracts from the above-mentioned First Annual Report of the Newcastle and Gateshead Sanitary Association

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The association being thus established, the committee at once proceeded to institute a minute examination into the sanitary condition of both boroughs, through the agency of district committees. And in order to avail themselves of the local knowledge of gentlemen connected with each district, the members of the town councils, and the medical officers acting under the Poor Law, were respectfully invited to lend their assistance. Through the kindness of the clergy and others, rooms were provided gratuitously for the meetings of these ward committees, and five hundred copies of printed questions, similar to those adopted by the London Statistical Society, were furnished for their guidance in conducting the necessary inquiries.

A large mass of valuable facts was thus rapidly acquired, and the existence of many unnecessary, and therefore inexcusable, sources of misery and disease indicated in situations where they might least have been expected. In fact, every bye street and court in both towns furnished the strongest evidence of the necessity for stringent sanitary regulations; while, in not a few instances, the poorer classes were apparently subjected to very extortionate demands for the miserable tenements which they inhabited. Sandgate and Pipewellgate, which represent the more crowded and unwholesome districts in each borough, were submitted to a special examination, each room being visited by two members of the committee, and a return made of the number, sex, and age, of its inmates. The results of these inquiries, (for which the association is indebted to the Rev. George Harris, Drs. White and Charlton, and Messrs. Humble, Newton and Proctor,) were detailed in communications read before the committee, and are preserved in the appendix to the present report. An abstract of the more prominent evils noticed in the return of the other ward committees was prepared by the secretary, and published in the first number of the Journal of Public Health.

These investigations were at once productive of benefit, by causing the removal of much filth which had been allowed to accumulate for years in the courts and lanes, and in some instances, in the very houses occupied by the poor. But as the committee felt satisfied that the mere temporary cleansing of a few districts is of very little importance, compared with the advantages to be derived from the establishment of a judicious system of sanitary regulations, they lost no time in placing themselves in communication with the governing bodies of these towns. Memorials to the town councils of Newcastle and Gateshead, praying them to adopt speedy and efficient measures for improving the drainage and cleansing of the boroughs under their charge, and for preventing various nuisances therein, were accordingly prepared by the association, and presented by Sir John Fife and Alderman Brockett. In both cases this appeal has been met in the best possible spirit. The town council of Gateshead have since been actively engaged in preparing plans for the construction of a main sewer, to extend throughout the whole length of the town, and for the erection of public wash-houses and conveniences. In Newcastle, where the corporation have much larger funds at their disposal, and where the powers of the town council have been materially increased by a recent Act of Parliament, the committee cannot but regret that more active measures have not been adopted for the introduction of sanitary improvements. They admit that this delay has probably in a great measure arisen from a desire to wait for the operation of the long expected Health

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of Towns Bill, but as another consideration may also possibly have tended to prevent the members of the town council from carrying into effect their own convictions of the requirements of the case, the committee would respectfully venture to protest against any further postponement of the necessary measures on the ground of the unpopularity of a sewer's rate. That the ordinary revenue of the corporation is not deemed adequate to meet the expense of an effective system of drainage, may be inferred from the introduction, into the last Newcastle Improvement Act, of clauses empowering the council to levy rates for this special purpose. But the petitions, from numerous and respectable bodies of rate-payers, in favour of improved drainage and cleansing, which have at various times been presented to the town council, and the complaints on the same subject which have during the last year been laid before the Sanitary Association, prove that the inhabitants of the town are fully sensible of the evils under which they now labour, and are also prepared to pay an equitable share of the expenses incurred for their removal. And when they consider the great advantages, both engineering and economical, which a well-matured and simultaneously executed system of drainage must possess over an irregular and disjointed series of drains, and, moreover, observe that the evidence of the most skilful engineers proves incontestably that uniformity in the construction of sewers, and comprehensiveness in their arrangement, are absolutely necessary to place the drainage of any large area on a systematic and efficient basis, the committee cannot but entertain a confident hope that, ere the expiration of another year, a proper survey will have been made of this district, and plans of sewerage, on a scale commensurate with the requirements of the town, will be in active progress.

In addition to the memorial presented to the Newcastle town council, the committee have had several interviews with the Town Improvement committee of that body, by whom they have invariably been received with the utmost courtesy and attention; and, in order to facilitate the communication between the Sanitary Association and the executive committee of the council, the latter have, with great consideration, spontaneously appointed three of their members, namely, the present Mayor, Alderman Donkin, and Mr. Ralph Dodds, to act as a deputation in receiving the suggestions of the Sanitary Committee, as well as any complaints which may be intrusted to the latter for presentation. The illness of two of those gentlemen has rendered their interviews with your committee less frequent than the latter could have wished; and the uncertainty at present felt, as to the fate and ultimate form of the Government measure, has also operated as a check to the discussion of local remedies. But, from the interest now universally felt in sanitary improvement, and from the certainty of the town council being the body charged with the local administration of the general measure, there is every reason to expect that a vigorous effort will shortly be commenced for the prevention of many of the sources of discomfort and disease which have so long prevailed in these towns.

Among the various suggestions which your committee have submitted for the consideration of the council, may be mentioned: 1st.—the immediate preparation and enforcement of byelaws for the regulation of lodging-houses, and the prevention of various nuisances; 2nd.—the removal of the corporation depots of refuse from the vicinity of the town, and the establishment of a system of town-cleansing, by which not only the public thoroughfares may be kept clean, but the receptacles for refuse, attached to private houses, may also be regularly emptied by the public scavengers at a moderate charge; 3rd.—the erection of additional public conveniences; 4th.—the appointment of a health committee, as at Liverpool and Manchester; and 5th.—the preservation of any unoccupied ground belonging to the corporation, and its allotment, on favourable terms, to any persons who may undertake to build houses suited to the requirements of the working classes.

Though no direct steps have as yet been taken for the accomplishment of this last important object, it has nevertheless engaged the earnest attention of your committee. They have instituted inquiries in several towns, in order to ascertain the relative cost of the improved dwellings which have recently been erected for the workmen and their families, and have obtained plans and estimates of those built at Birkenhead and at St. Pancras, London. And when it becomes generally known to the inhabitants of Newcastle and Gateshead that the rents of many of the tenements, occupied by the poorer inhabitants of these towns, have, during the last year, been considerably advanced, in some instances as much as 20 per cent.; that houses similar to those at London and Birkenhead can be erected in Newcastle 30 per cent. below the cost of those in the former localities; and that the already excessive demand for this class of houses will shortly be still further increased by the proposed alterations in Sandgate; speculators will probably soon be found to supply the deficiency.* Your committee are, however, of opinion, that in the formation of any company or association for this purpose, every inducement to participate in the undertaking should be proffered to the working classes themselves; and they are

* Since the presentation of this report, the committee have been informed that Mr. Richard Grainger, to whom the town of Newcastle is already so much indebted for structural improvements, contemplates the erection, on the Elswick estate, of a large number of cottages, which will be arranged with every attention to the health and comfort of the inhabitants, and to each of which a small garden will be attached.

satisfied, that by raising the required capital in small shares, which should return a fair interest, very many of the industrious and intelligent men, who are to be found among the workmen of this district, would gladly avail themselves of the opportunity to invest their savings in security, and at the same time confer a lasting benefit on their fellow-labourers.

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Several communications on the subject of nuisances have been represented at the monthly meetings of the committee, and some useful suggestions made for the more effectual accomplishment of sanitary objects. * * * * * * * Among the complaints forwarded to the committee is an anonymous communication, describing the unwholesomeness of the workshops in which many of the journeymen tailors are daily immured. These unfortunate men are stated to be, in some cases, confined in damp cellars, through the walls of which the most offensive effluvia exhale. As this and similar evils cannot well be remedied by legislative measures, the committee are induced thus to allude to it, in the hope that employers will yield to the influence of public opinion, and provide workshops adapted to the vital necessities of human beings.

During the last year the committee have taken every opportunity to endeavour to carry out one of the leading objects of the association, the enactment of a general sanitary measure. In addition to the petition which they were last year authorized to transmit from the association, they promoted similar petitions to Parliament from various sections of the inhabitants of these towns; and in support of a general measure for improving the public health, they have the satisfaction of stating, that petitions have this session been presented from the town councils of Newcastle and Gateshead,—from the inhabitants of each borough, in public meeting assembled,—from the vicar and clergy of Newcastle,—from the householders and ratepayers,—and from the working men, in addition to that forwarded from your committee on behalf of the association. The public meeting at Newcastle was rendered additionally interesting by the fact of many working men taking part in its proceedings; and as a striking proof of the strong sense and practical spirit which pervaded the addresses of the speakers, the committee may be permitted to refer with satisfaction to the frequent reference made by Lord Morpeth, in his late speech in Parliament, to the facts and arguments adduced at that meeting. On the receipt of the bill for promoting the public health, now under the consideration of Parliament, the committee felt it their duty to submit its provisions to a careful examination; and Alderman Donkin, Dr. White, and Mr. Greenhow, kindly undertook the task in conjunction with the secretary. Their report embraced four recommendations, the adoption of which would, in their opinion increase the efficiency of the measure. They suggested: 1st.—that the local board of health be empowered to add to their number a certain proportion of persons, not being members of the town council, who may be considered capable of assisting in the administration of sanitary measures; 2nd.—that a medical officer be appointed in each sanitary district, to superintend the working of the bill, and act as medical adviser to the local board; 3rd.—that the provisions of the Towns Improvement Bill, of last session, may be more readily brought into operation, by an order in council or otherwise, instead of requiring, as at present, another Act of Parliament for that purpose;§ 4th.—that the local board be empowered to *compel* the drainage and paving of private streets and courts. * * * * * * *

Report of the Sub-committee for the West Ward of All Saints, Newcastle-upon-Tyne, presented and read by the Chairman, the Rev. George Harris, to the General Committee of the Newcastle and Gateshead Sanitary Association, June 21, 1847.

The sub-committee for the West Ward of All Saints have to report to the general committee, that four of their number have examined twenty-one entries in the north and south side of Sandgate; and the result of their inquiries they now present for their consideration.

Of the twenty-one entries only two or three are well paved and lighted; the remainder are generally badly paved, and without light at night; and some are in a shameful condition, especially Hunter's Entry and Eddy's Entry. The drainage is, with two exceptions, on the surface or open gutter, and commonly in a neglected state. Sandgate itself, though lying parallel to the river, and in its immediate proximity is, like many other densely populated streets in Newcastle, wholly unfurnished with sewers, or any other contrivance for removing its surface and refuse water. Somerville's Entry, and Eddy's Entry, were almost choked up by accumulation of ashes and filth of every description. The entries are seldom and irregularly swept and cleansed; and only those which are thoroughfares by the scavengers; and no necessary whatever is to be found in any one of the twenty-one entries.

The committee have examined 257 tenants, who rent, at from 8*d.* to 3*s.* a week, 312 rooms, which are occupied by 1,087 persons, of all ages. Of this number seventy-five had not been vaccinated, fourteen of whom had had small pox, 616 could neither read nor

§ The Parliamentary committee of the town council of Gateshead have since adopted a somewhat similar recommendation.

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write, and of the residue comparatively few could do both. Clothes are washed and dried in the rooms almost universally; and the water has to be fetched from the public pant, [conduit] often at considerable distance and expense, and entailing also great loss of time. In very numerous cases the diet is of the meanest and coarsest description; flesh meat being rarely, if ever, had; whilst in others, the food is of the usual kind. The Sunday is commonly passed in their rooms, chiefly through want of decent clothing to appear at places of public worship.

The misery and destitution which have been witnessed have been appalling. From nine people to seventeen have been found in one room; the higher number lying on shavings accumulated in various parts of the single apartment. One room, in Roade's Entry, in which fifteen people slept, had no ventilation from the window, that being a fixture. In another, twelve feet by ten, in which were fourteen persons, the window did open, but only on to an immense dung-heap, the accumulation of many years; the stench of which the woman who was lying in bed, having lately given birth to a child, declared was oftentimes stifling. And in another wretched hovel, for which its two inmates paid eightpence a week, not a single article of furniture was to be seen; and only some rotten straw in a corner.

At the head of the Wood Entry there is often at the entrance of one of the houses an overflow of liquid filth from the hill above; and on the other side of the lane an accumulation of nuisances. In Somerville's Entry there are several pigsties, one underneath an occupied room; whilst the dung-heap, in the neighbouring entry, surrounded by four pigsties and aided by the overflowings from the soapery on the hill above, was most offensive and dangerous. This nuisance, with others, having been reported to the official authorities, orders were promptly given for its removal, and as promptly carried into execution; ninety-five loads of accumulated filth have been taken from that one deposit. In the Half Moon Entry, there is a building, the ground floor of which was formerly used as a tripe house, which is now covered with filth of every kind, the refuse of two other entries running into it. Over this receptacle the rooms are occupied by people, who complain loudly of the above abomination; and adjoining is a room with a brick floor, in which were seven persons, and two of the inmates ill of fever. In Pot House Lane, the filth from pigsties, adjoining the back of houses, drains through the wall of one dwelling, producing a noisome smell; and there is an accumulation of ashes and filth in a ruinous building opposite the entrance of some houses in the street. The state of Eddy's Entry, as first seen by the committee, surpasses all description. Some houses have fallen down about its centre, on the left from Sandgate; and, notwithstanding the propping up of those above, from the state of the foundation there is every probability that a similar accident may attend them. One of the adjoining premises has already fallen, and its inhabitants had a narrow escape from being involved in its ruins. The passage up the entry was almost altogether obliterated; the steps were blocked up or destroyed, and a fœtid stream, of every abomination, flowed down the entries, depositing in its course the filth with which it was laden. A collection of ashes, and other refuse, was heaped into the ground story of one of the houses directly underneath the dwelling room of a shoemaker,—his family seven in number; and communicating also, by an open window, with the lower room of a lodging-house crowded with inmates. The whole entry, with its wretched tenements, is a disgrace to the town of Newcastle.

The committee here also are happy to bear testimony to the promptitude with which the official authorities gave orders for the removal, so far as it could be effected, of the abominations of this entry. The steps which remain are once more visible, and the ground floor accumulation has been removed. The causes, however, which led to these evils still remain, and require removal also.

Many of the rooms in this, and various other entries, are unfit for human habitation; they are occupied probably from the lack of accommodation, occasioned by the operations of the railway. The huddling together of such numbers, in some of the rooms visited by the committee, was found to arise, in many instances, from their having been dispossessed of places in the Castle Garth, and other localities; and the rents, in several instances, have been raised, notwithstanding the miserable nature of the dwellings.

The committee must bear testimony to the courtesy with which they have been received, and to the willingness with which their questions have been answered, as well as to the desire which exists to adopt any change for the better that may be suggested. They are satisfied if suitable information, as to the causes of health and comfort, were spread amongst the people, it would meet with ready reception and co-operation. There should be a general supply of water, free of charge, to all the tenements below 5*l.* a year, or at least supplied at a lower rate than to houses of higher rental; and it should be conducted into every lane, if not to every stair-head. There should be conveniences, and these connected with a drain in every entry. The pigsties should be removed; and no dung heaps suffered to accumulate. The walls of the entries, as well as those of the houses situated in them, should be white-washed at least twice a year, if not oftener, more especially in the lodging-houses. Every entry should be swept and cleaned daily. Lodging-houses should be erected, and placed under proper superintendence. Washing-houses should also be built in this locality, and made free to the inhabitants under certain regulations. Considerable expense would no doubt be entailed on the municipal authorities in carrying out

such sanitary reformation; but there would be less need for expenditure on dispensary, infirmary, and fever hospital, were that reformation effected. Disease necessarily prevails more or less in these narrow and crowded alleys; children suffer from scrofulous diseases; the adult population become destitute through ill health, and when ill health once sets in among them the sickness is often long and tedious, and recovery often impossible, on account of the filth, impure air, and general destitution, in which the inhabitants of these lanes are placed. The municipal authorities could confer no greater public benefit than by devoting some portion of their resources to the accomplishment of the changes which have been suggested.

Newcastle-upon-Tyne, June 21, 1847.

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Report of Sub-Committee, &c., June 1847.

4065. It is mentioned in this report that you as secretary drew up an abstract of the more prominent evils noticed in the returns of the other ward committees or sub-committees, which returns the association do not seem to have thought it necessary to print in their main report?—Yes; I prepared a sort of abstract of some of the sanitary evils of Newcastle in some of the other districts of the town, which was published in the *Journal of Public Health* in November 1847. I beg to place it in evidence. I there also alluded to the powers which the corporation possessed for preventing these evils. I gave some quotations from the Local Town Improvement Act of 1846, and I alluded to the clauses which, in my opinion, might have prevented the evils, or many of the evils which we had noticed.

Report on the Sanitary Condition of Newcastle-on-Tyne, by George Robinson, M.D., Honorary Secretary to the Newcastle and Gateshead Sanitary Association.

This report (alluding to the foregoing report of the sub-committee on Sandgate) may be considered as faithfully representing the general condition of the streets and lanes formed by the residences of the working population of Newcastle. To prove that its statements are not exaggerated, I subjoin a few facts from the observations made in other districts by the sub-committees of the same association:

"The continuation of Sandgate into the East All Saints' Ward," I quote from a report which appeared in June last in one of the local papers, "was examined by the "Rev. George Heriot, incumbent of the district, and Dr. Robinson, who, in every case of "fever which they witnessed, found its occurrence explained by the proximity of some "decomposing organic substances. Thus, in the Dock House Entry, in a room on the "second floor, no less than six persons had recently been attacked by fever, and beneath "this room is an old wooden donkey shed, used as a receptacle for filth, from which the "most offensive effluvia constantly escape. The cellars of other houses in the same "court are occasionally filled with the refuse water from the adjoining gas-works, and "the tenants describe the stench as most noxious. Several cases of fever were also found "in the White Boar Entry, which is in some parts not above four feet wide, and the "floor of which is about eighteen inches above that of the lower tenements entered from "it. Another circumstance to which they allude, is the existence of enormous masses of "filth which were pointed out as sources of discomfort and disease, not only by the "inhabitants of the poorer division of the district, but also by the tenants of a much "superior class of houses. Thus, in Hardy's Buildings, Stepney Fields, which consist of "terraces built back to back, small yards connected with each house, and a narrow lane "intervening, they found the latter converted into a filthy swamp from the accumulation "in it of the fœtid liquids which oozed from the numerous cesspools and ash-bins attached "to those houses. It appeared that here, as throughout the rest of the town, the greatest "difficulty is experienced in finding persons to clear these receptacles, even when paid for "their labour, and to this cause was ascribed the present disgusting condition of the lane "in question. From the operation of the same cause, there also existed at the back of "Gibson-street a still larger accumulation of ashes and filth, to which were added the "refuse of a tripe manufactory, and the sweepings of a piggery. At Stepney Square "several similar nuisances exist: one in particular, which contains a large proportion of "putrefying fish, is well worthy of the attention of the authorities. Nor should the "extensive *public* depôt of manure, near the Ouseburn Bridge, pass unnoticed; for in "addition to its direct influence in polluting the atmosphere, they cannot but think that "the continuance of this nuisance by the corporation will operate injuriously, by tending "to confirm the poor in their habits of negligence and uncleanliness. The absence of "conveniences was commonly complained of. The drainage was also a frequent source of "complaint, particularly in the courts adjacent to the North Shore. These houses are built "at the foot of a steep bank, and as the passage leading into the main street constitutes "the only channel for the escape of water, the lower rooms are often flooded during and "after a heavy rain, and the entry itself is, at such times, scarcely passable."

The other division of the same ward was examined by Dr. Glover and Mr. Sheil, who met with similar nuisances, and also noticed the defective drainage of several new streets. In Dean Yard, High Bridge, visited with Mr. Furness, which is within a dozen yards of Grey Street,* and which contains a common lodging-house, and several tenemented

* The handsomest street in the town.

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houses, a cellar under one of the latter is used as a receptacle for ashes and every description of filth; and as if this were not a sufficient source of atmospheric pollution, several pigs are kept in the same hole. It is scarcely necessary to add, that several cases of fever, one at least terminating fatally, have within the last few months occurred in this court.

In Prudhoe Place, and in several other parts of the town, the difficulty experienced in obtaining the requisite assistance for the cleansing of ash-pits, &c., has been so great, that the filth has been permitted to accumulate against the walls of rooms inhabited by large families, till it now constitutes masses six or seven feet high, the liquid portion of which oozes through the porous walls of the adjacent houses, rendering them at once damp and pestilential. (Prudhoe Place was visited in company with Mr. William Chapman, one of our most active borough magistrates, who directed the attention of the police to this most striking nuisance; and on their interference, the landlord, to escape the infliction of a fine, undertook the removal of the accumulated refuse, which had, however, previously caused several cases of fever.) A poor woman in Brandling Place (which is very pleasantly situated on the edge of the town moor) has at this moment (June 28) one of her two rooms rendered, from the same cause, wholly uninhabitable. And another house in the same street (visited by Mr. J. Lambton Loraine and myself) illustrates, in a still more striking manner, the waste of money, as well as the loss of health and comfort, which result from inattention to sanitary arrangements. Here a man, having a family of nine children, has, with three of his children, been recently attacked by typhus, the parish contributing to their maintenance during the suspension of his labour. The cause of the pestilence was sufficiently obvious. Immediately in front of the cottage was spread a large pool of stagnant water, covered with a green film, and so foul and deep had this accumulation become, that it was with the utmost difficulty the family could cross it. The attack of fever seems to have stimulated all parties, and to have convinced them of the necessity for removing this fœtid pool; but how was this accomplished? Instead of making a few yards of covered drain, which would have insured the permanent removal of all surface water, the evil has merely been disguised, it cannot be considered as even palliated, by scattering over the spot eight cart-loads of ashes, at an expense of about ten shillings.

Another instance of the discomfort and disease to which the poor are subjected by the present non-interference system, was brought under the notice of the Sanitary Association by Mr. G. Y. Heath. A labouring man lay in an underground kitchen or cellar, in Paradise Row, near the Spital, confined to bed by an attack of typhus. The room adjoining (which was orginally intended for a coal-cellar, having a grating communicating with the street) had, from the absence of any ash-bin or necessary, been used by all the tenants of the house (about half-a-dozen families) as a receptacle for filth of every description, while the neighbours were also in the habit of discharging their refuse water into it through the street-grating above.

The Rev. J. G. Pearson, incumbent of the district, kindly assisted in the examination of the more densely populated portion of Westgate Township, a district constituting a new and rapidly increasing town, which has within these last few years arisen in the north-western suburb of Newcastle, and beyond the jurisdiction of the corporation. These streets are mostly inhabited by labouring men and their families, and present in a marked degree the physical and moral evils which afflict the poor, when deprived of all official superintendence and protection. Undrained, unpaved, unlighted, they constitute in winter a perfect swamp, whilst the summer's sun acting on the mass of animal and vegetable refuse embedded in the mire, produces the poisonous exhalations from which fevers originate. This district was consequently the chief focus whence the epidemic of scarlatina, which last year ravaged Newcastle, spread its fatal influence, and the mortality here amongst the children was excessive. Nuisances similar to those previously described were of frequent occurrence. The corporation midden, or refuse-keep, which is situated between this district and the barracks, was an object of general complaint. And several instances of the hardships inflicted on individuals by the absence of any law for enforcing the regular cleansing of private ash-heaps also came under our notice. One man complained that he could scarcely have access to the room which he rented, in consequence of a large heap of ashes and filth, and that on his first entrance he had to pay five shillings for the removal of the refuse left by his predecessors and the surrounding tenants, none of whom would join him in the expense. Perhaps the most fearful illustration of the suffering and disease to which the poor are subjected from the want of proper superintendence, was furnished by Mount Pleasant, a steep bank, forming one side of a narrow, densely populated ravine near the quay. It was visited in company with Mr. Glover, the owner of some tenemented property in the neighbourhood, who described his tenants as much annoyed, and his houses depreciated, by the contiguity of the nuisance which we are about to describe. On the very summit of the hill is an open space, the sides of which are occupied by a large number of piggeries, and in close contact with these undrained filthy sties are several tenemented houses, the lower rooms of which are considerably below the level of the accumulated refuse. We found that the inhabitants of these rooms (the back walls of which are rendered constantly damp and offensive by the oozing through of the foul liquid from above) had suffered severely from fever. In

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nine rooms visited in Craig's Court, which is situated on the summit of the hill, and in immediate proximity to the piggeries, we found fever to have prevailed as follows :—

In 1st	room,	occupied at time of visit by nine persons,	there had, within the last three months, been	six	cases of fever,	but no deaths.
2nd	room,	5 persons,		3	cases,	but no deaths
3rd	„	6	„	6	„	2
4th	„	9	„	11*	„	2
5th†	„	9	„	8	„	0
6th	„	3		3	„	0
7th	„	3	„	2‡	„	0
8th	„	9	„	9	„	0
9th	„	2	„	2	„	1

Making a total of fifty-five inhabitants at the time of visit, fifty cases of fever, and five deaths.

This abode of wretchedness and disease is in the parish of All Saints, and, it may be added, that Mr. Newton, the surgeon in charge of the poor of this district, is at the present moment (October 7), labouring under severe typhus ; his assistant died last week from the same cause, and the relieving officer, whose life was at one time despaired of, is but slowly recovering from a similar attack.§

It is, perhaps, unnecessary to dwell longer on these repulsive and frightful details. The few facts now stated, which might be multiplied to an unlimited extent, will probably render it sufficiently evident that the inhabitants of Newcastle suffer most severely and extensively from preventible causes of disease. It may not, however, be altogether useless to glance for a moment at the powers which the legislature has given to the local governing body for the protection of the health and comforts of the inhabitants of this town.

An Act of Parliament for improving the borough of Newcastle-on-Tyne, which received the Royal assent on the 26th of June 1846, contains the following, among other provisions for that purpose—viz.,

The town council, who are charged with the execution of the Act, are, by the 83d clause, empowered to make a sewers' rate for "constructing, maintaining, and improving the sewers within the said borough."

By the 89th clause, persons neglecting to use proper precautions for the consumption and prevention of smoke in furnaces, are liable to cumulative penalties after receiving a month's notice in writing from the council.

By the 92d and 94th clauses, the owners of existing houses are required to provide necessaries and ash-pits for the same, and to empty them when required.

By the 96th clause, pigs are forbidden to be kept in any dwelling-house.

And, lastly, by the 109th clause, the council are "empowered from time to time to "make byelaws, as they shall think fit, for all or any of the purposes following ; (that is "to say,)

"For making regulations for the registration and inspection of slaughter-houses and "knackers'-yards, and for keeping the same in a cleanly and proper state, and for "removing filth therefrom at least once in every week.

"For regulating the manner of keeping swine, and preventing the keeping thereof "within any dwelling-house, and for describing the limits of such borough within which "it shall be lawful to keep the same.

"For regulating the duties of scavengers.

"For making regulations for the registering of lodging-houses, and for maintaining "cleanliness therein, and keeping them in a wholesome condition.

"For laying down rules for cleansing filthy and unwholesome dwellings."

Were these powers vigorously exercised, it is evident that many of the evils above described could not have existed. But, with the exception of a recent effort to induce manufacturers to use measures for the diminution of the smoke nuisance, the powers

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* Including the two fatal cases. The window did not open.

† The first five rooms were in the same house.

‡ The window did not open.

§ Since the above was written, I have received from Mr. T. M. Greenhow, the senior surgeon to the Newcastle infirmary, and one of the oldest and most zealous advocates of sanitary reform, the following facts relative to the condition of Carnaby's Court, in Gallowgate, where he is now attending two fever patients, and where a well marked case of cholera presented itself last summer. This court, twenty paces in length and four yards wide, contains, at the present moment, twelve families of human beings, twenty-five pigs, three horses, six cows, and four middens. Gallowgate being situated near the entrance to the town moor (on which the freemen possess the privilege of pasturing their cows), contains extensive stabling for these animals ; and a gentleman filling one of the highest offices in this town has assured me that upwards of seventy cows have, during the last year, perished (as the owners believe) from the poisonous vapours emanating from some adjacent lead-works. At the opposite extremity of the town, the inhabitants also complain of the injurious influence upon their health of a similar manufactory, and affirm that much of the noxious vapour in this instance arises from the combustion in the open air, to save the expense of the removal, of the bark used to cover the sheets of lead during its conversion into the carbonate, or white lead.

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vested in the town council by this Act have remained wholly inoperative. There is, however, no reason to believe that this remissness has arisen from any personal antipathy to sanitary improvements. On the contrary, many of the most active members of the corporation are zealous advocates for the physical and moral improvement of the working classes; and some have, at considerable expense, voluntarily introduced smoke-consuming contrivances, and otherwise ministered to the health and comfort of their fellow-townsmen.* Nor can I ascribe the delay which has occurred in the execution of the Town Improvement Act to any other cause than the disinclination to active exertion, so often induced by a sense of divided responsibility.

4066. Did you also sign the report of the medical committee of that sanitary association communicated to Mr. Robert Rawlinson, superintending inspector of health, at the time of his visit and inquiry here, in 1849?—I did. I was one of several who signed it.

4067. And you still entertain the opinions there expressed as to the connection between fever and want of sanitary arrangements?—Yes.

4068. Are you cognizant of the contents of the reports of the dispensary and fever hospital in this town?—I have read these reports, and I agree with the sentiments expressed in them; but I am not at all responsible for them.

4969. Do you see any reason to differ from any of the opinions there expressed?—No, I do not.

4070. Did you, about the time of the formation of that association, make yourself familiar with the state of the town generally?—I did; I have examined at different times almost every part of the town. All the eastern part of the town I am very familiar with, owing to my connection with the eastern dispensary.

4071. What, in your opinion, was the sanitary state of these districts in August 1853; and what improvements in them had taken place since the formation of that sanitary association and the reports then made by it, and by its sub-committees?—During the epidemic of scarlet fever, 1846-7, and during the epidemic of Irish fever, 1847-8, large quantities of refuse were removed, and various crowded entries were cleaned out: and some cleansing may possibly have taken place during the visitation of cholera in 1848-9; I think some did; but since that time I think there has been a retrogression. I think the town has not been kept so clean as it ought to have been.

4072. Are you among those who consider that the lightness of the attack of cholera here in 1848-9 was due to the sanitary measures of removing the decomposing animal and vegetable matter adopted during the prevalence of Irish fever, 1847-8, and to the abundant supply of pure water then enjoyed by the town?—Yes.

4073. And are we to understand you to say that in your opinion these masses of decomposing animal and vegetable matter have since re-accumulated to any extent?—They had accumulated previously to the visitation of cholera in 1853.

4074. Generally throughout the town, or only in some special districts?—I think generally throughout the town.

4075. (*Mr. Simon.*) When you make a remark which would apply only to the part outside the old municipal boundary, will you specify it, so that we may understand that all you say applies to the old borough, except where you say otherwise?—Yes.

4076. (*Chairman.*) Had you, at any time shortly before the recent outbreak of cholera, occasion to renew your familiarity with those districts, so as to see in what state they were, and to form a competent opinion as to their then sanitary condition?—I was continually passing through different parts of the town, and having once taken an interest in the sanitary condition of it, objects attracted my attention that perhaps might not have attracted the notice of a casual and ordinary observer; and I saw in every part of the town accumulations of refuse.

4077. You noticed some improvement, no doubt, in certain parts?—In a few places I have noticed improvement.

4078. Of what sort?—In Eddie's Entry, for instance, which in 1847-8 was in a shocking condition. The houses there were tumbling down; they were in an unsafe condition. These houses have since been rebuilt, and the court paved. That is on the north side of Sandgate.

4079. Are they now provided with privies and ash-pits?—I can scarcely speak to that point; I should question it; there may be one or two privies.

4080. I wanted to see if you knew, because we have a report to the contrary. Inspector of nuisances, Jenkins, reports on the 18th of February 1851, that certain premises in Eddie's Entry have only recently been rebuilt, wholly without privy or ash-pit?—I am not prepared to speak positively upon that point.

4081. Referring generally to such districts as Sandgate or Pandon, or the Close and Castle Garth, and so on, for a few weeks previous to the outbreak of cholera, what do you think was the condition of the houses there at that time, as regards cleanliness, ventilation, and privy accommodation, or any other points which you may think important in a sanitary point of view?—I think the houses were dirty; the ventilation is necessarily imperfect in these narrow courts, and there was also a great quantity of refuse and filth lying about.

* It should also be mentioned that public baths and washhouses, similar to those at Liverpool, are now (A.D. 1847) in course of erection, at the expense of the corporation.

4082. You object, so to say, to the mode of house construction exhibited in these courts?—Decidedly.

4083. Do you think it compatible with proper or sufficient ventilation?—I do not. The overcrowding of the houses in narrow courts, some of these courts not being above four feet wide, I think, of course, renders the ventilation very imperfect; and this, together with the absence of privy accommodation, and the results to which that leads, necessarily tends to render the whole atmosphere of the place vitiated and unfit for the ordinary purposes of respiration.

4084. And the want of thorough ventilation owing to the courts being closed often at one end, and to the houses being built back to back, you would consider of great importance?—Yes. I may add that on the north side of Sandgate, I think it is in some respects worse than on the south side. I think the condition of some of the houses on the north side rather better than that of those on the south side; but on the south side, next the river, owing to their proximity to the river, they are better ventilated. In the houses which are built into the banks, as in Pandon and many other places, the back walls are more frequently damp.

4085. Have you recently been into any of those houses?—I have, within the last month.

4086. (*Mr. Simon.*) Do you know of any material difference in those places, in Pandon and Sandgate, and so on, between such as are cul de sacs, not thoroughfares, and those which are thoroughfares?—Those which are thoroughfares have necessarily a better ventilation to a certain extent.

4087. I mean as regards the cleansing of their pavements?—No, I do not see much difference. I think excremental filth is thrown on the surface everywhere.

4088. (*Chairman.*) And generally they were not in a proper condition at the time of the late outbreak?—Decidedly not.

4089. (*Mr. Simon.*) As regards the crowding of the inhabitants?—I think there is overcrowding, both with regard to the number of rooms existing on a given area, and with regard to the number of individuals living in a room of a given size; and altogether there are too many people upon a given area.

4090. (*Chairman.*) Can you compare the state of crowding in these rooms in the year 1848 with what it was in 1853; when do you think they were the most crowded?—Of course the population is migratory to a certain extent; and, during the time of harvest in autumn, there is generally I should say more overcrowding than at other times; at least, during a portion of the summer and autumn.

4091. Do you think the overcrowding has decreased since 1848, or increased, or remained pretty stationary?—I think it has remained stationary.

4092. There is no material improvement?—No material alteration, I think.

4093. Have you had occasion to notice any material improvement in the privy accommodation of these poorer districts, between 1848 and 1853?—I have not.

4094. Is it still in your opinion very inadequate?—Decidedly.

4095. When you mention that in the thoroughfares, as well as in the cul de sacs in these districts, the surface of the soil is covered more or less with excrement, do you think that that is owing to any perverse love of filth on the part of the inhabitants?—I think it is from the necessities of their position.

4096. For want of proper accommodation?—Yes; from conversations I have had with many of the poor, both male and female, I am satisfied that they feel aggrieved by it. They feel depressed and aggrieved by the insufficient accommodation, particularly the women.

4097. It offends and almost destroys their sense of decency, I suppose?—Yes, and renders the atmosphere of perhaps the only room they have unwholesome and offensive.

4098. Have you yourself, on going into those rooms, habitually had occasion to notice this vitiated condition of the atmosphere?—Yes; utensils are kept there and they emit an offensive effluvium.

4099. Have you habitually seen those "kits" in the room, or at the stair-head, full of fœcal matter?—I have, in both situations.

4100. (*Mr. Simon.*) Should you confine that description to Sandgate?—Decidedly not. It exists in all the courts, I think, in which the houses are sublet to different tenants, and which are inhabited by the labouring population. The Close, Pandon, Silver Street, Pudding Chare, Castle Garth, the lanes and courts leading out of Newgate Street, and the Bigg Market.

4101. (*Chairman.*) I find in the reports of the inspectors of nuisances that the railway arches of the York, Newcastle, and Berwick railway, are reported week after week or fortnight after fortnight as being in the most filthy condition, covered with excrement, ashes, and so on; though time after time it seems that steps were taken to remove the then accumulation. To what do you suppose that that is owing?—To the absence of privy accommodation and of ash-pits; indeed I may observe that in every secluded portion of the town, for instance, take Eldon Square, you observe the same thing, though to a minor extent.

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4102. Which side of Eldon Square is that?—I allude to an open space along the railings in Eldon Square. I have observed it frequently; and wherever there is a private lane or court, you observe a nuisance of that kind. Of course in the upper parts of the town it exists to a less extent than in the lower parts. The railway arches exist in the lower parts of the town chiefly.

4103. Do you think that generally throughout the town there is a very great want of privy and ash-pit accommodation for the poor?—Decidedly; and I may observe that, as far as my observation extends, that absence of proper privy accommodation exists to a greater extent within the old municipal boundary than in the suburbs. In the suburbs there are more privies, I think, in proportion to the labouring population than within the old municipal borough.

4104. (*Mr. Simon.*) It was stated to us that possibly there might be in the town 15,000 families destitute of privy accommodation?—I have not gone into the details, and I should therefore have to speak vaguely on that point.

4105. (*Chairman.*) Directing your attention for a moment to the upper parts of the town, what is your opinion of the state of the sewers there, as to inodorousness and cognate points?—I should say, in the first place, that even in the upper part of the town the sewerage is defective. If we go to the very top of the town, I do not think that the town moor is well drained; and there are many streets and places in the upper part o the town which are also insufficiently drained, and whose sewers, from the absence of some provision for cleansing or flushing them, emit, I know, an offensive effluvium.

4106. I see that on the 20th of November 1848, a unanimous resolution of the sanitary committee of the board of guardians and others for the eastern district, was adopted to this effect, "That the corporation be memorialized on the subject of a general "drainage throughout the borough, and that they be requested to supply the board with "a map of the drainage;" a kind of reiteration apparently of the memorial which the first annual report of the Newcastle and Gateshead Sanitary Association states had already been presented to the town council of Newcastle, for improving the drainage, and cleansing of the borough. Were you one of that sanitary committee of the eastern district?—I was not. I was once in communication with the town surveyor on the subject of a map of the sewers, and I was favoured by him with a sight of the map in his possession. It was an ordinary map of the town, with red lines marked upon it. I think he told me that he had not found a map of the sewers on entering office; and I do not know whether one exists to this day.

4107. In what parts of the town have you noticed this offensive odour from the gully holes?—At the Barras Bridge, Ellison Place or Saville Place, and along Newgate Street; in passing by the gully holes you were very much annoyed, and a feeling of nausea and sickness almost is produced by the offensive effluvia near Mortimer Court.

4108. In Percy Street, too?—Pretty generally over the town, particularly in the hot months.

4109. (*Mr. Simon.*) Can you speak positively to that being a frequent occurrence in Clayton Street, Grainger Street, Market Street, Grey Street, Blackett Street, and about those levels?—I can, during the heat of summer and autumn.

4110. Can you speak as to that having happened in the summer of last year?—I can.

4111. To a great extent?—To a great extent. I noticed during the whole of last summer, at any rate from July to September, that the offensive effluvia and exhalations from the sewers were more marked than I had ever previously noticed.

4112. Have you formed any opinion as to the cause of this stink from the sewers?—The sewers are very large. I know that when Mr. Rawlinson was here he had a good deal of evidence upon that point, and the quantity of water flowing through them was not sufficient to carry away the solid deposit.

4113. (*Chairman.*) Have you ever experienced any inconvenience in your own residence in Eldon Square?—Certainly.

4114. In what respect?—My own back premises are not in an unexceptionable state sometimes, from the presence of offensive effluvia.

4115. (*Mr. Simon.*) Has it ever happened to you to see the interior of any of the sewers here?—I had occasion the other day to see the interior of a sewer at the back of Rosemary Terrace, which leads out of Rosemary Lane.

4116. (*Chairman.*) What was the date of this?—On the 17th of this month; quite recently. I have the particulars down here, if you would like to have them.

4117. (*Mr. Simon.*) If you please.—In Rosemary Terrace there were seven tenements, thirty-five persons, and one privy. That privy was a seat above the common sewer, and there was no provision for carrying away the filth deposited in that open sewer, and once a week or so the people had to shovel it along.

4118. Was it a public privy?—No, a private privy belonging to this block of houses.

4119. What does Rosemary Lane run out of?—Out of the Pudding Chare to Westgate Street, I think. They complained very much; they threw a little water down, and then shovelled it along as well as they could; a very repulsive task for them.

4120. (*Chairman.*) Where did they get it to?—They were obliged to push as far as they could reach.

4121. Do you suppose the same state of things to have prevailed last summer?—Yes.

4122. (*Mr. Simon.*) Are you aware that cholera prevailed severely in Rosemary Lane?—I am. There were two deaths in that very block of houses.

4123. (*Chairman.*) What was the nature of the inconvenience in your own back premises?—I took my house rather in a hurry, and I took it for a term of three years. There is no water-closet there. There are two privies. In the house next me, on one side, two ladies died from cholera.

4124. In Eldon Square, generally, are there no water-closets?—There are water-closets. In the house next to mine there was no water-closet originally. It has been supplied during the last two years.

4125. That was the house in which there were two deaths?—Yes.

4126. (*Mr. Simon.*) Is it the case that the basements are damp in that locality?—They are. I have heard complaints of the dampness.

4127. Does the sewage ever leak into the houses?—I cannot speak to that of my own knowledge; but there is a very vicious arrangement of sewers, which prevails, I believe, pretty generally, viz., that the sewer, passing from the sink or drain in the back premises, runs under the kitchen. There is some soakage from that; and when they have become obstructed, I have heard complaints in different quarters, even in new houses, which have only been erected for two years.

4128. (*Chairman.*) How were your inconveniences occasioned?—By the effluvia from the privies. We were obliged to throw down chloride of lime. The one privy communicates directly with the sewer, the other communicates with an ash-pit; and the privy communicating with the sewer is the greater nuisance of the two.

4129. But they are now supplied with water, are they not?—They are not yet. I have spoken to my landlord, and he has promised to provide it. I can confirm Mr. Potter's statement as to the frequency of privies being provided for the servants in houses where water-closets do exist.

4130. And do they generally communicate with the sewers?—With the ash-pits.

4131. (*Mr. Simon.*) Supposing we should come to the conclusion that there were altogether about 1,500 houses in the town having water-closets, supplied either by the Whittle Dean company or from rain-water cisterns, or otherwise from wells and springs, how many of those houses should you think had open privies in addition?—I should say, with the exception of Mr. Grainger's houses in the centre of the town, where there are no yards, ninety per cent. of the houses also had privies, perhaps more.

4132. (*Chairman.*) Privies are the general arrangement throughout the borough?—Yes.

4133. Do they generally communicate with the sewer direct, or with ash-pits?—I think, generally speaking, with ash-pits.

4134. This arrangement prevails in what you would call good second-class houses?—I think in some of the best houses in the town.

4135. Then, as regards the houses for the poorer classes, the accommodation is altogether deficient?—Yes; and I have seen houses in which, where privies had been provided, those privies became such a nuisance that the landlord locked them up, and they were no longer used. I took a note of a case that occurred in Rosemary Lane. I would particularly beg to direct the attention of the Commissioners to this house. It is a house let in tenements. I think there are six; there may be eight tenements. There is a yard behind, in which there are about three rooms. In that place alone there were eight deaths.

4136. In how many houses?—In one house; that house sublet perhaps into six or eight tenements, and with about two or three rooms behind.

4137. There were eight deaths in eight or nine tenements?—Yes. There was a privy in that yard, but when I saw it the other day it was nailed up; it was not used, but there was a cellar below the house, and a woman who lived there told me that previously to the cholera that cellar was full of filth.

4138. (*Mr. Simon.*) What is the exact position of that house?—No. 3, Rosemary Lane. The ashes and filth and mortar nearly filled the cellar. She told me that it took nearly a week to ladle the water out, and nearly another week to clear away the filth. The water in that cellar arose a good deal from the deficient sewerage. There is a sewer in Rosemary Lane, but the level of the bottom of the sewer is above the level of the cellar, and consequently there is soakage from the sewer into the cellar.

4139. Is that a frequent occurrence?—I have heard of other cases. In the next house to that, which is a public house, at the time of my visit the landlord's servant was pumping water by a force-pump from the cellar into the sewer. He found it necessary to have it removed twice a day, in order to keep the cellar dry.

4140. (*Chairman.*) This was quite recently?—Yes, on the 17th of January, but he had had the force-pump in use for some years, I believe.

4141. What led to the fastening up of that privy to which you have alluded?—It was such a nuisance: I suppose it had not been cleaned regularly, and ashes had been thrown about there, and the whole privy had become a nuisance.

4142. Had they no ash-pit then in the court; was there no other ash-pit for the inhabitants?—At the time of my visit the centre of the court was used as an ash-pit. There would be an ash-pit probably communicating with the privy; but the position of these ash-pits very often is highly objectionable, and the difficulty of getting them emptied frequently leads to an accumulation of refuse and to the pollution of the air in very crowded

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places. I may mention also in connection with that point, that the farmers who wish to use the town refuse for agricultural purposes, find great obstacles in obtaining it, because the supply is not constant. They at one time may be suddenly called upon to take away a great quantity, and at other times they find a great difficulty in getting it. Now I think that a more systematic and regular emptying of these private ash-pits would be a convenience to the farmer, and also tend to remove the effluvia.

4143. (*Mr. Simon.*) Are you aware of any regulations for the cleansing of such places? —No, not for the private ash-pits; the people have to make private bargains.

4144. (*Chairman.*) Do you think that the power conferred in the year 1846 upon the council of this borough for ordering all or any of the privies, ash-pits, and receptacles for manure and refuse within the borough to be emptied and cleansed under penalties, has been properly enforced?—I think not; I do not think the corporation have interfered at all with the private ash-pits, except perhaps during the prevalence of the late epidemic; and I have known cases in which people have been put to great inconvenience, and have had to pay as much as 5*s.* or 6*s.* to get them emptied. Men, I think, make it a business to communicate between the householders and the farmers, and they charge both: they charge the householder for getting the ash-pit emptied, and they charge the farmer for finding him the refuse.

4145. I am not asking you with regard to the charge, but with regard to the exercise and enforcement of the power. Have the privies, ash-pits, and receptacles for the manure and refuse been emptied and cleansed as often as would have been desirable for the preservation of the health of the inhabitants?—Certainly not.

4146. Do you happen to be acquainted with the accommodation in respect of privies which the district of Sandgate had in August 1853?—There may have been privies in two or three public houses; but, generally speaking, I should say there was no privy accommodation there at all.

4147. You are not intimately acquainted with the details?—No. I know that in some of the courts leading out of the Bigg Market, or Newgate Street, the public house at the head of the court will have a privy; but the people living up the court will have none, and sometimes they may or may not get permission to use it; perhaps if they are good customers of the public house they may.

4148. Have you had occasion to notice the state of the public privies about the town? —I would beg to hand in to the commissioners, a mass of papers which I have received at different times from Mr. J. P. Turnbull of Alnwick; they were enclosed to me by him last night, and relate to the previous correspondence between the Town Improvement committee, the various authorities of the corporation, himself and myself, with respect to the public privy in St. Nicholas churchyard, which has long been complained of as a nuisance.

4149. The first of these letters from Mr. Turnbull, is dated the 27th November 1850, and was placed in your hands as secretary of the Newcastle and Gateshead Sanitary Association, and alludes to this privy as "a nuisance of the most noisome and unwhole- "some character, that it is possible to describe," emitting "poisonous exhalations," an intolerable stench, and so on?—Yes.

4150. Then in your reply, dated the 29th November 1850, you stated, that you would "lose no time in forwarding his letter to the chairman of the Town Improvement "committee of the town council, with your own personal confirmation of the correctness "of his statement." You also added that this nuisance had been brought before the notice of Mr. Superintending Inspector Rawlinson, during his official visit to Newcastle, but that "you feared the local authorities had not yet taken any efficient steps to remove "the evil?"—I did.

4151. Then, on the 11th December 1850, Mr. Turnbull enclosed to you a memorial, signed by between seventy and eighty of the neighbours, and entreating the removal of this privy, "the stench and effluvia, and noxious exhalations" arising from which, are there described as "intolerable," "offensive," "poisonous and dangerous," and so on?— Yes, he did.

4152. On the 14th December 1850, you wrote to Mr. Turnbull, and stated, that at a meeting of the sanitary association of this town on the previous day, "a resolution, "condemnatory of the nuisance in question, was unanimously adopted, which together "with the memorial you were about to forward at once to the Town Improvement "committee;" and again, on the 16th, you wrote and stated, that "you had that morning "met the chairman of the Town Improvement Committee, and that he had anticipated "you, by stating that directions had been given for the immediate removal of the "nuisance?"—Yes, that is so.

4153. Then, some two or three weeks later, Mr. Turnbull writes to you, and to the chairman of the Town Improvement committee, letters dated 4th January, 1851, stating "that nothing had yet been done in the matter," and that he had been informed that it was not the intention of the authorities to remove the nuisance, but to endeavour to remedy it?—Yes.

4154. Then, in June 1851, there were exchanged five letters between Mr. Turnbull, yourself, the chairman of the Town Improvement committee, and the deputy town clerk, Mr. Arnott, relative to the abatement of the nuisance, which Mr. Turnbull and yourself considered would be wholly inadequate, if partial?—Yes.

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4155. From that time till November 1853, the matter, so far as this correspondence goes, appears to have slumbered; but on the 21st and 23d of that month, in short, just after the cessation of the cholera, I find Mr. Turnbull writing some four or five letters to the mayor, the chairman of the Town Improvement committee, and yourself, in which he alludes to the previous correspondence, and complains of the inadequate steps taken to abate the nuisance, which in his view was impossible without entirely removing it; the last letter to yourself, dated the 25th January, in this year, requesting you to bring the nuisance and correspondence respecting it under the notice of this Commission, and mentioning that it had been complained of by two inspectors of nuisances, by yourself, and Dr. Embleton, and as I understand the letter, condemned by some members of the town council and Town Improvement committee?—Yes, that is so.

4156. Well, and in what state is it now; is it still unremedied?—The privy exists still. Mr. Turnbull complains (and I think justly), that the existence of a public privy in the back room of a house, immediately behind a shop in one of the principal thoroughfares of the town, is a nuisance which can only be removed by removing the privy itself. This is under the roof of one of the houses in Moseley Street, and at the back of a respectable shop.

4157. Is that house inhabited?—It is; the rooms above the public privy are inhabited.

4158. (*Mr. Town Clerk.*) You must have a privy somewhere?—I think the position of these public privies, generally speaking, objectionable. They are in blocks of buildings under the same roofs as inhabited rooms; and I think it would be certainly desirable to separate those two things.

4159. (*Chairman.*) Is that privy well kept; is it sufficiently supplied with water, so as to be as little offensive as possible?—I cannot speak to that point.

(*Mr. Town Clerk.*) It is flushed with water twice a day.

4160. (*Mr. Simon.*) What is your opinion as to the general scavenage of the public streets and lanes of the town?—I should say that the scavenage in the principal thoroughfares, such as Grey Street and Grainger Street, was very good; but when you get into the private streets, and the less public thoroughfares, then it becomes objectionable.

4161. (*Chairman.*) I see in your lecture of the 10th of February, 1847, you allude to narrow lanes and crowded courts being never touched by the scavenger, and the fever hospital report of the same year speaks in the same way of scarlatina having been greatest in places where (*inter alia*) the filth was unscavenged. Has that state of things continued from that time till the last summer and autumn?—I think so. I am not aware that the corporation scavengers have ever cleaned out these private courts.

4162. Do you think that these places, because of their being private property, have remained in that state to which you allude, viz., as absolutely unscavenged?—Yes, I think so. During the recent epidemic, and since then, I think the corporation have afforded greater facilities to the poor people in some districts, in respect of allowing them to get their kits emptied in the evening, by sending round carts for that purpose.

4163. (*Mr. Simon.*) How long has that been the case?—Only I think during or since the epidemic of 1853, and I was told the other day in one court that they had discontinued calling in the evenings lately.

4164. (*Chairman.*) Did any accumulations ever collect to an extent which, in your opinion, would have amounted to a nuisance?—I think so.

4165. Were they not under those circumstances removed?—I think not. I have seen accumulations of refuse, and during the cholera I was particularly struck, I think on the 14th of September, by the effluvia arising from the then removal of these accumulations. I thought it did more harm than good. Mr. Lee afterwards caused that practice to cease.

4166. Since the years 1848 and 1849, by the Nuisances Removal Act, and the Nuisances Removal Amendment Act, adequate powers have been vested in certain authorities for the removal of all nuisances calculated to prejudice the public health. Do you think, notwithstanding this, there have remained accumulations in these private courts and entries for considerable periods, which could properly be considered to be nuisances?—I do, decidedly. The causes were always in existence, and therefore, even if the nuisances were removed, they would soon re-accumulate.

4167. In your opinion the accommodation and the provision for the wants of the population in these courts was such that the accumulation and re-accumulation of filth was inevitable?—I think so.

4168. There has been a good deal of improvement in paving, has there not?—Yes; I think every year. I do not know in how many streets, but I have noticed that certain streets have been paved, and that some sewers have been made.

4169. Has there been any improvement in any other point that you can speak of?—I do not remember any other.

4170. Have you recently, on going into houses, had occasion to notice that the walls were damp?—Certainly. There are many houses in this town the walls of which must always be damp as long as the houses remain in their present situation.

4171. Have you ever noticed that they were filthy and unwholesome?—The accumulation of filth in the courts and about the houses, and the necessary retention of fæcal matters in the rooms and the soakage of impure water into the back wall of the houses, conjointly, I think, would make a condition which one would describe as filthy and unwholesome.

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4172. Have those filthy and unwholesome dwellings been properly cleansed from time to time, as far as you know?—During the epidemics I think they have been cleansed as far as they could be, but the soakage into the walls of the houses, I think, was a matter which could not immediately be reached.

4173. (*Mr. Simon.*) Between 1848 and 1853, were you aware of anything like an organized inspection of houses for any such purpose?—I was not.

4174. Or of any regulations having been issued for cleansing filthy and unwholesome dwellings?—I am not aware of any regulations having been issued to that effect.

4175. (*Chairman.*) Have you often found houses in a state which you would consider called for white-washing, cleansing, and purifying?—Certainly; I think in every case, where epidemic disease shows itself in an ill-conditioned house such steps should be taken immediately.

4176. Do you think generally, that the houses provided for the accommodation of the poorer classes in this town are in a tolerable and satisfactorily inhabitable state?—They certainly, speaking generally, are not in a good sanitary condition, and I have seen houses which I certainly think quite unfit for human habitation.

4177. (*Mr. Simon.*) Are you aware whether any houses have been closed as unfit for human habitation?—I have heard that some houses have been closed.

4178. (*Chairman.*) Previous to August 1853?—No; during the recent epidemic and since the epidemic.

4179. (*Mr. Inspector of Nuisances Charlton.*) Do you not know that there was an inspector of nuisances, who had the power given to him, and did occasionally get the premises white-washed, and then compel the landlord to give him that cleansing cost?—I am aware that under the Acts, to which allusion has been made, the board of guardians have the power of appointing an inspector of nuisances, and from occasional notices in the papers I believe that such an officer has been appointed and has acted, but I have no personal knowledge of the extent to which he has acted.

4180. (*Chairman.*) We know very well that he has had the power, but are you aware of that officer having put his powers into operation previous to the late outbreak in September 1853?—I have no personal knowledge of the extent to which he has acted.

4181. Can you form any opinion as to whether the amount of house accommodation for the poor has increased within the last few years as rapidly as the population?—Mr. Grainger in making his new streets has abolished a great many old localities where the poor used to nestle, and the railway has abolished a great many more, and the population has been increasing all the time, especially by the immigration of the Irish and so on; now do you think that the amount of house accommodation for the poor has increased within the last few years as fast as the population has?—The number of houses has increased in a very rapid ratio; but these new houses have been built beyond the boundaries of the old municipal borough, and I think in some respects their sanitary condition, quite as bad, or nearly as bad, as that of the older tenemented houses. Speaking merely as to the number of houses, I think that they may have increased almost in the same proportion as the population.

4183. Then the crowding among the poorer classes in the borough is not greater than it was, say a few years since?—Not greater perhaps than it was five or ten years since.

4184. (*Mr. Simon.*) Thus far the questions which we have asked you have been such as we should ask of any physician practising in the town; but we should now be glad to receive any statement you may have to make in respect of the memorial which you transmitted to Lord Palmerston, the words of which impute negligence to the local authorities?—The paper, which was published in the *Journal of Public Health*, November 1847, alluded to certain powers which the town council possessed under the Town Improvement Act of 1846, and specified certain clauses in that Act conferring those powers. I must adhere very much to the opinions which I then expressed as to the negligence of the local authorities in not carrying into effect these salutary powers. There is a Town Improvement Act of 1850, which I have not seen; but I think this Act of 1846 contains the principal powers for sanitary purposes which were possessed by them previously to the last Town Improvement Act.

4185. (*Chairman.*) We have been alluding to this Act of 1846 all along; smoke consumption, privy emptying, house white-washing and cleansing, and so on?—I made one or two memoranda from glancing over the Act a short time since. I may, perhaps, with your permission, go through one or two of those points. Clauses 58 and 59 say, "Whereas it would be conducive to the convenience and health of the inhabitants" &c., and enact that streets, not highways, may be levelled and paved by the council, at the expense of the owners of the houses. Now I think there are many streets which are not highways which are not yet levelled and paved; and I think the unpaved condition of the streets, particularly in this clay soil, is objectionable.

4186. (*Mr. Town Clerk.*) Will you just mention those streets by name as you go on?—I should probably select streets within the borough.

4187. (*Mr. Town Clerk.*) Within the ancient borough, because it does not apply elsewhere?—I can mention one or two now, probably. There is a street leading from the end of Argyle Street, by the goods station of the railway, Minden Street. There is St. Thomas's Crescent, and Vine Lane, and Buxton Street. I do not know whether private courts are considered to come within that clause or not.

(*Mr. Town Clerk.*) Scarcely a private court.

4188. (*Chairman.*) Those that you have mentioned are all thoroughfares, are they?—Yes.

(*Mr. Town Clerk.*) These would be streets made by individuals, imperfectly paved, and opened out to the public. That seems to me to be the position of these different streets.

4189. (*Mr. Simon to Mr. Town Clerk.*) Are they not under your control, under that clause?—I think we might possibly have applied that clause to them. Possibly they have not been sufficiently long dedicated to the public to have become highways; still they are public streets, to all intents and purposes.

(*Dr. Robinson.*) The 67th clause gives the council power to regulate the levels of streets and drains. Now, the state of the house I have mentioned in Rosemary Lane, I think, shows clearly that the level of that drain, being above the floor of the cellar, had not been properly regulated. Then, again, the 79th clause gives power to the council to construct sewers in or under any streets within the borough.

4190. (*Mr. Simon.*) They have constructed a great many sewers, have they not?—Yes, I think they have; but there is an evil connected with the sewers'-rate, to which I have more than once directed attention, viz., that the sewers' rate is levied from the whole of the inhabitants; at any rate, from all the inhabitants within the old municipal borough, while a sewer, perhaps, is merely made in two or three streets in each year; so that a person might go on paying the sewers' rate for a number of years, and yet not have his own street sewered.

4191. (*Chairman.*) That occurs everywhere, more or less?—The 89th clause gives powers for preventing smoke, and the carrying on of trades occasioning noxious and offensive effluvia, under a penalty. Now there are offensive trades carried on in this, as in other large towns, which, of course, I would not object to under proper regulations; but I have known them carried on otherwise, and have known both garbage and refuse of various kinds to accumulate within the municipal borough. I could mention two or three cases, Back Lane, at the corner of Gallowgate, and so on.

4192. What is the next point?—The 92d clause requires owners of existing houses to provide a privy and ash-pit. I am not aware of that having been exercised in any one instance. The 93d clause requires privies to be provided in new houses I am informed (I think it has also been given in evidence) that certain houses were built in or near Hanover Square without privies.

4193. (*Mr. Simon.*) Is that within the borough?—(*Mr. Town Clerk.*) Yes.

4194. (*Chairman.*) I cited a report by the inspector of nuisances to that effect, as regards some premises in Eddie's Entry?—Yes. Then, again, the 94th clause requires privies to be emptied when ordered by the council. I think, if the privies had been emptied a little more frequently, such accumulations as I have seen would not have existed.

4195. (*Mr. Simon.*) At the period of the cholera, you thought it advisable, as recommended by Mr. Lee, that the accumulations should not be disturbed, but should rather be covered over?—Yes.

4196. That was by reason of the great amount of the accumulations?—Yes. I observed it on the 14th, and I was taken ill myself the same night. There may or may not have been a connection between the circumstances. On going up Westgate Hill, I saw that large quantities of refuse and filth were being carried out of some entries there, and certainly the effluvia were very repulsive; and, at a time like that, I think they were likely to produce nausea and predispose to cholera.

4197. If arrears of this kind are allowed to accumulate, it becomes positively dangerous to remove them?—Yes, during the prevalence of an epidemic. The 97th clause requires houses to be cleansed and whitewashed when necessary. I do not think that that clause has been sufficiently acted upon. Indeed, I am not aware of any instance in which it has been exercised.

4198. (*Mr. Town Clerk.*) It might be exercised without your knowledge?—Yes. The 104th clause requires stagnant pools, filth, &c., to be cleansed. I have seen stagnant pools and filth notwithstanding.

4199. (*Mr. Simon.*) Where?—In a brick field near Buxton Street, which was alluded to yesterday.

4200. (*Chairman.*) Is that near Shield Field?—A little below Shield Field.

4201. (*Mr Simon.*) Between Pandon Bank and Buxton Street?—Yes.

4202. (*Mr. Town Clerk.*) A stagnant pool in a brick yard?—Yes. I have also seen filth I may say almost all over the town; at any rate within the municipal boundary. The 105th clause empowers the council to order prosecutions for public nuisances. Now, I think that the corporation midden at the Ouse Burn, which I saw about the middle of December last, was a public nuisance, and I am not aware that the corporation have ever ordered a prosecution for it. The 109th clause empowers the corporation to make bye-laws for various sanitary purposes; among others, for regulating lodging-houses. I am not aware that any such byelaws were made between 1846 and September 1853. I think those are the chief points in this Act of 1846, and I may mention that I directed attention to the subject in November 1847, and that those remarks of mine, and the remarks made at the same time by various speakers, were quoted and alluded to by Lord Morpeth, in bringing forward the Public Health Act, and with your permission I will allude to one or two of these quotations. Here is one: "A few short months ago, Bishop Riddell, the Rev. J. Standon,

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" and Dr. Charlton were in communication with the authorities of Newcastle, to repre-
" sent to them the filthy, overcrowded, and infected condition of Sandgate and the neigh-
" bouring localities. The project was then entertained of removing fever patients to a
" more open elevated part of the town, where in some temporary or other building, their
" chance of recovery would be greater, while the spread of the infection among the inha-
" bitants would be kept in check. A similar suggestion was made by Mr. Greenhow, at
" the time of the cholera. Dr. Browning, in the paper which he read in Newcastle in
" 1838, at the meeting of the British Association, gave a remarkable illustration of the
" success of such a removal in the case of the plague. But the proposal of June last in
" Newcastle was not adopted. The sanitary condition of the infected district has since
" undergone little amendment, and the fever has extended its ravages. The Rev. J. Standon
" is dead, the Right Rev. Dr. Riddell is dead; martyrs to their self-denying devotion to
" the cause of suffering humanity." I allude to this merely to shew that the filthy over-crowded and infected condition of Sandgate and the neighbouring localities was then publicly and pointedly alluded to. Then there are some quotations from an account of a public meeting at Newcastle-on-Tyne. Dr. Headlam said " he was sorry to say that " streets and suburbs were rising with the same disadvantages; streets were built without " sewers, the ground not even levelled, and the soil in the centre saturated with filth." This speech was made in February 1848.

4203. (*Mr. Town Clerk.*) Alluding to the suburbs?—He alluded to the suburbs. " 'Mr. Currie of the Working Men's Association, said: 'He and other members of the " 'committee were appalled by the scenes they had witnessed. He had never conceived " 'that a locality existed in so miserable a condition as Sandgate. There was not a privy " 'in its whole length or breadth.' Mr. Gallon resided in Westgate. He said that 'The " 'annual value of the property was 25,000*l.* but little more of the property than was " 'valued at 5,000*l.* was sewered; that was in Westgate; places quite as bad as Sandgate.'" " Dr. White said 'The statements of Mr. Currie and Mr. Gallon were not over-" 'charged. The misery of Sandgate could not be conceived; it must be seen to be " 'realized. In one single room in that locality he had seen thirteen cases of fever.' " Mr. Greenhow said, 'They were too well aware of the universal prevalence of fever in " 'Newcastle for some time past. During the whole of the time while the gaol was " 'surrounded by fever there had been even less disease than usual within its walls. To " 'what was this to be attributed? Simply to the adoption within the prison of those " 'sanitary regulations which it was their object to extend to the whole community.'" I allude to these observations merely to show that the defective sanitary condition of the town in general, and of certain districts in particular, was then pointedly and publicly alluded to.

4204. (*Mr. Simon.*) You spoke of the authorities neglecting to enforce these laws; are you aware whether any particular cases have been pointedly brought under their notice?—During the time the Sanitary Association was in active operation, we continually made representations to the Town Improvement committee, and we sent certain memorials to the town council. I have not a record of all these complaints and memorials or representations. The minutes of the Town Improvement committee and of the town council will doubtless shew them.

4205. (*Mr. Newton.*) Do you recollect the Rev. George Harris and myself attending as a deputation from the Sanitary Association to the Town Improvement committee, and laying before them the condition of Sandgate in 1849; Dr. Headlam, I believe, was in the chair?—I know I formed part of a deputation both to the town council, and to the Town Improvement committee, on the subject of the defective sanitary condition of the town in general and of particular nuisances.

4206. (*Chairman.*) How long was the association in action?—About two years; we ceased our exertions when Mr. Rawlinson came down, because we expected that the Public Health Act would be applied. It was during 1847, 1848, and 1849 that we were active.

4207. (*Mr. Simon.*) Can you call to mind what subjects particularly you brought under the notice of the town council?—That public necessary in St. Nicholas' churchyard I know was alluded to.

4208. As respects the general application of the law, or the procuring of new laws on the subject of the sanitary condition of the town, can you recollect any points that you brought before them?—The minute book of the Sanitary Association, I am sorry to say, was destroyed; and, therefore, I have some difficulty in furnishing dates and particulars; but I know that complaints were made, based upon such particulars as are described in the appendix to that report of the Sanitary Association, and such as are described in the abstract published in the *Journal of Public Health.*

Vide ante. p. 275-277.
Vide ante. p. 277-280.

4209. (*Mr. Newton.*) Do not you remember, on the occasion to which I allude, that the whole sanitary condition of Newcastle was brought before the committee?—I know it was repeatedly. We addressed a memorial to the town council, which was presented by Sir John Fife, urging the appointment of a health committee or sanitary committee of the town council. That was in 1848. A previous recommendation to the same effect had been made in 1847.

4210. (*Chairman.*) And a committee was formed?—No, not till the late outbreak of cholera; not till September last.

4211. (*Mr. Simon.*) The memorialists who signed the recent address to Lord Palmerston imply that the absence of such provisions for the public health as they would have recommended, occasioned the severity of the late outbreak of cholera?—I think so. I think that the cholera was, as it were, invited to Newcastle by the defective sanitary condition of the place, and its mortality aggravated by that defective sanitary condition.

4212. (*Chairman.*) Supposing that the same measures, which in the year 1848–49 proved, or are generally supposed to have proved, effectual in rendering the then epidemic of cholera light, had been carried on systematically from that time to 1853, or had been repeated in the beginning of 1853, do you think that that would have had an effect in mitigating the ravages of the recent epidemic?—I do, most decidedly.

4213. (*Mr. Simon.*) Have you any remark to offer on what have been the obstacles to the adoption of these measures?—That is rather delicate ground perhaps to go upon, and it is merely a matter of opinion. In moving the adoption of that memorial, I certainly alluded to the awkward and peculiar position in which the corporation of this town was placed, as a public body charged with the enforcement of local laws against nuisances, from the circumstance of its being at the same time to a certain extent the originator and maintainer of certain nuisances. I alluded particularly to the corporation refuse-heaps or middens. I asserted, and I must still say, that it seemed to me incongruous and improper for the local body charged with the power of prosecuting public nuisances, to create and continue what I considered to be public nuisances. I would allude particularly to a large collection of refuse near the Ouse Burn, near the Glasshouse Bridge.

4214. Do you know of any other?—There is a public midden which has been provided in Sandgate, but I think that that has been provided during the last few months only, probably during or since the epidemic of 1853.

4215. Do you mean at the head of the Swirle?—Near the head of the Swirle, in Sandgate.

4216. Considering the circumstances of that locality—considering the great want of private middens there which has been certified, would not you have thought it desirable to provide a public midden for the use of the inhabitants?—Yes, perhaps; it is a choice of two evils.

4217. Would you press a complaint against the existence of that midden?—Unless it be regularly and very frequently cleansed, I should say that the continuance of a mass of refuse of that character in the midst of a crowded and densely populated district, would be injurious to health.

4218. Has it been insufficiently cleansed?—I am not aware of the frequency with which it has been cleansed. I have seen a considerable quantity of filth there.

4219. (*To Mr. Newton.*) As it is in your district, can you tell us whether it is regularly cleansed?—It has been kept very clean while the Commissioners have been here. It was very dirty a day or two before you came.

4220. Before the late outbreak of cholera what was its condition?—It was not there then.

4221. (*Mr. Simon to Dr. Robinson.*) Would your complaint against the middens which you have mentioned relate to their position being wrongly chosen for them, and as being too near to houses?—Yes. I know also that in 1849 another of the public privies was complained of; one leading out of Nun's Lane into Newgate Street.

4222. (*Mr. Newton.*) Are you aware that there is no light at night in some of the public privies of the town, and that in those places pockets are frequently picked?—I have not visited them at night.

4223. (*Chairman to Mr. Bryson.*) Are any of these public privies lighted?—Yes.

4224. Is the one at Glasshouse Bridge lighted?—I think not.

4225. Lime Street?—I think not.

4226. North Shore?—I am not aware.

4227. Swirle?—I do not remember, I think it is.

4228. Causey Bank?—That is not lighted.

4229. Burn Bank?—I think not.

4230. Stockbridge?—I think not; it is not used at present; we are making improvements in the sewerage there.

4231. High Crane?—That I think is lighted.

4232. Salt House Entry?—It is not.

4233. Javel Group?—I think not.

4234. Skinner's Burn?—I think not.

4235. Castle Garth?—That is lighted.

4236. St. Nicholas Churchyard?—That is lighted.

4237. Pilgrim Street?—That is lighted.

4238. High Bridge?—That is lighted.

4239. Nun's Lane?—That is lighted.

4240. Vegetable Market?—That is lighted.

4241. There are two apparently there?—They are both lighted

4242. Hay Market?—That is lighted.

4243. Fish Market?—I am not clear.

4244. Cattle Market?—I think not.

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4245. (*Mr. Town Clerk to Dr. Robinson.*) Was the non-lighting of the privies one of the subjects of complaint?—No; I made no allusion to that.

(*Mr. Town Clerk.*) I think if Dr. Robinson had mentioned it to the Town Improvement committee they would have ordered them all to be lighted.

4246. (*Chairman to Dr. Robinson.*) Have you ever noticed the churchyards here?—They were crowded. The ground was raised four or five feet above the level of the surface, in some places perhaps more. It was represented to Mr. Rawlinson.

4247. Have you ever heard of the circumstance of the side of a churchyard wall giving way?—In All Saints' churchyard; yes.

4248. Are they generally in a good condition?—In a very bad condition.

4249. (*Mr. Simon.*) There is a cemetery without the town, is there not?—Yes, two private cemeteries.

4250. (*Chairman.*) The churchyards were all, I believe, closed during the epidemic?—They were

4251. Have any of them been re-opened?—Not that I am aware of; I complained of Jesmond cemetery, it was not properly drained; but I believe that since then there has been a deep drain made there.

4252. With reference to the water, what have you to state?—I certainly ascribe the late prevalence of the cholera to a certain extent to the impure water, and the circumstance of the Tyne water having been used during this last summer.

4253. (*Mr. Simon.*) What was your experience of the water?—It was muddy, so muddy that I was not inclined to use it.

4254. Had it any unpleasant smell?—I am not aware.

4255. (*Chairman.*) You never noticed any bad smell or taste?—I did not.

4256. Did you feel called upon to give any advice to your patients with reference to the use of it?—I think there was a pretty general feeling against the use of the water, and that all persons who could get any better did not use it. I had a specimen of the impure water given to me at the time; it contained a large shrimp, and various marine animals. I think this bottle was handed in to the board of guardians as a specimen of the bad water on the 14th.

4257. The Whittle Dean water ordinarily is good enough—Yes.

4258. (*Mr. Simon.*) So that that impure water had been derived from the river, not from the Whittle Dean?—Yes.

4259. (*Chairman.*) And filtered?—I thought the filter must have been rather a convenient one to let those animals pass. I have also a complaint to make against the pant water. I heard during the time of the cholera complaints of the pant water. I know that persons who used the water from different pants complained very much both of the smell and the taste of it.

4260. Do you know the particular pants?—Blackett's pant was one.

4261. Is that supplied by the Whittle Dean company?—No. I examined into some points connected with the Pudding Chare the other day, and I find that the water now supplied to the poor in some parts is quite unfit for use.

4262. Is that near the Blackett pant?—No, they get their water from other pants, the Bigg Market pant, and the Black Horse pant in Newgate Street.

4263. These pants, which you are speaking of, are supplied by springs?—I think they are. There are two pants in Newgate Street in particular.

4264. They are supplied by springs?—Yes.

4265. (*Mr. Town Clerk.*) They have their water supplied, I think, by the spring on the North Elswick estate?—I do not know the source of supply, but only the condition of the water taken from them.

4266. (*Chairman.*) That in Newgate Street you thought unfit for drinking?—Yes.

4267. (*Mr. Town Clerk.*) Could you give me the date at which it was so foul?—On the 17th of January. I may observe that, in the case of these houses in Pudding Chare, they formerly for a length of time were supplied by the Whittle Dean company, but in consequence in one instance of the owner or occupier of an adjacent yard, in which a tap was placed, objecting to the continuance of the tap there, the company cut it off, and the consequence was that the people were then obliged to have recourse to these pants for a supply of water. Several people, whose names I have, say that they get their water from that pant in the Bigg Market, which water yellows and dirties the clothes, and stinks. One woman says that she is obliged to steal water; that she has often offered to pay the landlord if he would lay on the water, but in vain. The water was laid on and was paid for regularly, but was cut off nearly a year since, because the owner of the adjacent yard objected to the people dirtying and quarrelling in his yard. This person and the other tenants offered to put the water at their own expense into their houses, but the landlord said he would not have his property injured. Another person says that the Bigg Market pant water stinks and dirties the clothes, that they send to the Manor's pant for water: that the pant in the Bigg Market and the Black Horse pant are frequently off, so that they cannot get it at all. I saw some of this water; I also got a specimen from the pant. Some complained that the water smelt as if the kits had been emptied into it. I am speaking of it during my visit.

4268. (*Mr. Simon.*) Have you an analysis of it?—No; but I had a specimen of it, the water contained flocculent matter, and it stank that morning.

4269. Do you think that that is from refuse matter having been thrown into the pant?—I cannot answer that; I think it very probable that by some means or other impurities have been thrown into or otherwise got into the pants or into the water coming from them.

4270. Are there any regulations for the cleansing of public pants?—I am not aware. That is a point on which the corporation officers can better speak.

(*Mr. Town Clerk.*) These pants are maintained by the corporation for the gratuitous use of the public, therefore their officers attend to them. They are not in my department; I know nothing about them.

(*Dr. Robinson.*) These poor people are obliged to go to the pants from the circumstances I have mentioned. They cannot get water from the Whittle Dean company.

4271. (*Chairman.*) Or rather their landlord will not let them get water from the Whittle Dean company?—Yes; I understand that in this case it was the objection of the landlord and of the occupier of the adjacent premises; and their neighbours dare not give them water because then they are liable to a penalty. People complain that they cannot get water from those who have the water, or from the company; that the pants in the Bigg Market and the High Bridge were frequently off; that they were off on certain days; that the Vicar's pump was also sometimes locked; that the water from the Bigg Market pant was like muck and could not be used. I have taken down the words. A girl from this house brought us some water from the Bigg Market pant while we were there, which was bottled in our presence and stank, having the smell of human excrement. A friend who was with me felt quite nauseated by the smell. I took a bottle of that water home, and two or three hours afterwards, went to the pant with a clean new bottle, and took a bottle full of it, and it contained a large quantity of flocculent whitish brown deposit, and certainly I should say that that water was calculated to predispose to cholera if the choleraic poison existed.

4272. (*Mr Simon.*) Do you know as to any of the other pants?—I have heard complaints of impurities in other pants, and from their situation in some instances—I particularly allude to the pant at the corner of Darn Crook—I should say that the water from that pant would very probably be contaminated, and the water from Blackett pant also, which, if I remember rightly, is close to a public privy, or if not close to a public privy, close to considerable deposits of filth in the immediate vicinity.

4273. Generally speaking, should you consider those pants supplied by springs fit to supply the population?—No; I should think it an act of kindness to do away with those pants.

4274. (*Chairman.*) And to have no pants except those supplied by the Whittle Dean company?—No.

4275. (*Mr. Simon.*) As to the occurrence of cholera in houses free from sanitary evils, can you mention to us many cases of that sort?—I entertain a conviction, a strong opinion at least, that in no part of Newcastle are there houses free from sanitary defects of one kind or another. In some districts, one evil, in some another may preponderate, but speaking generally, I do not know any district which I should say is in a first-rate sanitary condition. If you take the map of Newcastle and put your finger on any one point, I think I can show you within a short distance of that point sanitary evils.

4276. Take the neighbourhood of Gibson Street, including Richmond Street, Howard Street, Buxton Street, Regent Terrace, and Ridley Villas?—Yes; Buxton Street is unpaved and undrained. There is a large brick-field with a quantity of water about it, and there are cellar dwellings.

4277. Richmond Street?—In Richmond Street the paving was in a very bad condition; it has been improved recently. There are privies there, and houses are built back to back with the privies close upon each other.

4278. (*Chairman.*) There is no thorough ventilation through the intervening space in any way?—No.

4279. (*Mr. Simon.*) It is an oblong, with privies occupying the area in the middle?—Yes; there is a narrow lane with privies to each house, and very near each other. The ash-pits are frequently foul. A street below Howard Street, called Blagdon Street, was in a horrible condition, unpaved and undrained. Since the cholera I had occasion to visit it, about a month since, and they are paving and draining it; but previously to the cholera it was in a very bad condition. I am told that the lower part of Gibson Street is unsewered; that the sewer turns off there, and I have heard complaints of the surface water flooding the houses.

4280. Can you tell us anything of the sanitary regulations of Ridley Villas and Regent Terrace?—Behind Ridley Villas there are several new streets. I have seen them, even during the summer, in a filthy condition, almost impassable for any carriage, unpaved and undrained. Then there is Ridley Street, which runs at a right angle with Ridley Villas and Ridley Street, I noticed in the winter season that it was unpaved and ploughed up with carts.

(*Mr. Gregson.*) The street you mention is not completed yet.

4281. (*Mr. Simon to Dr Robinson.*) What do you know about Ridley Villas?—I think the houses have privies, and the ground behind them, as Mr. Gregson observes, is not drained, and these new streets are not paved.

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4282. Are those houses close behind them?—There are houses running parallel with Ridley Villas. In 1847, I find that the Rev. Mr. Heriot and I examined some portion of that district, and with your permission I will read the account of it. "In Harding's "Buildings, Stepney Fields, which consists of terraces built back to back, small yards "connected with each house, and a narrow lane intervening, they found the latter "converted into a filthy swamp from the accumulation in it of the fœtid liquids which "oozed from the numerous cesspools and ash bins attached to those houses." That is a general description of these streets; I can confirm that.

4283. Is it the case now as much as it was?—It was the case during the summer. I cannot say that it is at the present time.

4284. (*Chairman.*) That applies to the places in the vicinity of Ridley Villas?—Yes; the streets to the north of Ridley Villas.

4285. Which way does the land slope?—I think rather to the east, towards the Ouse Burn.

4286. (*Mr. Simon.*) The houses have got privies?—Yes.

4287. In the houses?—I think they are at the back, but I will not speak positively as to that point; there are little gardens and privies in them.

4288. Are they open or confined behind?—There is a certain space behind them, and there are new streets being formed.

4289. Is there any other point?—The gas has been spoken of. I have noticed escapes of gas sometimes, and as the quality of gas burnt in rooms and shops where a great number of work-people are employed, may exercise some influence upon their health, I will make one or two observations upon that point. I am a member of the Literary Society, and we have an apparatus for getting rid of the products of combustion of the gas. I took on the 18th of January from the glass reservoir at the bottom of the condensers some of the liquid. It consists chiefly of a solution of sulphate of iron, and there is some sulphate of copper. The acid acts upon the metal tube, and the acid is neutralized, and we find on the outside of the tube a large quantity of sulphate of iron and some sulphate of copper. I do not know the exact proportion of each. The products of combustion from each burner pass into a long tube which runs to the roof of the building; then as the vapour ascends, a portion is condensed into a liquid form, which falls down into the glass reservoir. I took this from the glass reservoir and tested it this morning, and it contains a very large quantity of sulphuric acid. Of course if sulphuretted hydrogen, for example, existed in any quantity in the gas, and were to escape, as there is often an escape of gas through the pipes in different directions, (I know it has taken place in the lane behind my own house very frequently), that would exercise a prejudicial effect upon the health.

4290. You have no reason to suppose that it contained sulphuretted hydrogen?—No, I did not test it for sulphuretted hydrogen; but it contains sulphur and sulphuret of carbon. We noticed that the bindings of the books were corroded; and on tasting it you could observe the acid.

4291. Is there any other point?—I may state that I have made inquiries as to the connection between defective sanitary condition and the mortality in particular districts; but I do not think it is necessary to trouble you with the details of these inquiries, because you have so much concurrent evidence on that point.

4292. (*Chairman.*) Have you visited any of the new districts?—The new streets which have been formed in the western parts of the town.

4293. Out of the borough?—Out of the borough. Elswick Terrace, Buckingham Street, Duke Street, George Street; the drainage is defective in most of these streets, and many of them are unpaved; there are a great many cellar dwellings; and in consequence of the rapid descent of the hill, the upper ground not being properly drained, there is necessarily more or less gravitation of liquid into the lower part.

4294. (*Mr. Simon.*) Are cellars still inhabited there?—Yes, and many of the cellars are very damp.

4295. (*Chairman.*) It is only in the new houses I believe that cellars are found?—Yes.

4296. It is not at all a common arrangement in the old parts of the town?—No. The surface drainage, particularly in the lower part of the hill, is also sometimes defective. After thunder showers some of the houses have been flooded, but steps have been taken, I believe, to remedy that to a certain extent.

4297. (*Mr. Town Clerk.*) I am sure you do not mean to state any fact inaccurately. Going down to Sandgate, you mentioned that the thoroughfares and the blind courts were all alike?—No, I do not think that was the question which the Commissioners addressed to me.

4298. (*Mr. Simon.*) I asked you whether there was any difference in those places regarding the condition of the surface?—I do not think there is.

4299. (*Mr. Town Clerk.*) And regarding the paving?—The entries are better paved on the north side.

4300. Do you know that all the thoroughfares on the north side have been flagged within the last few years by the corporation?—I am not aware whether the whole have, but I know that several have on the north side.

4301. You have spoken of complaint of the water in the pants?—Yes.

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4302. You mentioned the Blackett Street pant?—I alluded to the Blackett Street pant as having been complained of during the prevalence of cholera.

4303. You never heard it complained of before did you?—I have not made any inquiries upon that subject.

4304. Do you not know that the inhabitants of the town send from a great distance to it, as being the best water?—I have heard so; but a friend of mine during the time of the cholera, had a dinner party, and he provided this Blackett Street pant water for his guests, and they were perfectly horrified.

(*Mr. Gregson.*) I can vouch for the Vicar's pump certainly being run on from all parts of Newcastle; but still, from the analysis it is not very flattering.

4305. (*Mr. Town Clerk.*) The Vicar's pump happens to be the softest water I ever drank, and yet it is stated to contain great quantities of sulphate of lime, which we are told is very hard. (*To Dr. Robinson.*) Have you ever heard the pant water in the Newgate Street pant complained of before?—I have not made any special inquiries on the subject.

4306. But you found it impure on the 17th of January?—Decidedly.

4307. We may find perhaps some particular cause applying to it. You object to the corporation middens in the town?—Yes.

4308. Is it not necessary to have some depôt for manure?—I think with the present railway system, and the various opportunities of getting rid of refuse, and the desire of the farmers for refuse, it would be perfectly possible to do away with the necessity for middens at all in the town.

(*Mr. Gregson.*) The council have always found a very great difficulty, and I know they do now.

4309. (*Mr. Town Clerk to Dr. Robinson.*) Of course it could be no pleasure to any member of the council to have a midden in the town. There cannot be such a difference of taste in those things as to render it agreeable to any one; therefore if they could get rid of it, one would suppose they would?—I think if they directed their attention and energies to the subject, they would find some means of getting rid of these evils and preventing them.

4310. I think you will find that they have directed considerable attention to it without being able to better matters?—I could put in evidence the applications of parties, to show their desire for this said refuse.

(*Mr. Gregson.*) I have only to say that I have to pay people to get mine taken away.

(*Dr. Robinson.*) That is generally the case.

4311. (*Mr. Town Clerk.*) The doctors did not quite agree upon their mode of treatment of the disease when it broke out?—I do not think they ever consulted together upon the subject; every man practised according to his own view.

4312. Did you hear of the case of some medical man throwing the medicines of others out of the window?—I did; I saw it alluded to in the public papers. I think the officers of the Board of Health threw the medicines of the officers of the dispensary out of the window, or the officers of the dispensary threw the medicines of the officers of the Board of Health out of the window; I could not exactly understand which.

4313. You did not form a favourable opinion of the treatment by the officers of the dispensary, did you?—I am not aware of having given any opinion as to their treatment of cholera; I rather censured the Committee for not increasing their staff adequately to the emergency. Afterwards they did increase their staff, and I was very happy to second a vote of thanks to them for it.

4314. I find that, in your letter to the mayor of the 13th of September, you censured the dispensary?—I did.

4315. Then, at a special meeting of the governors of the dispensary on the 29th of September, you seconded this resolution:—"That the thanks of the governors be given, "as they are justly due, to the committee, for the arrangements they have made to meet "the calamitous disease at present prevailing in the town; and to the medical officers of "the establishment for the admirable manner in which those arrangements have been "carried out?"—I did.

4316. (*Chairman.*) Is there anything which you wish to add to your evidence?—These are some papers which I have received from Mr. Rawlinson. They are reports which were handed in to him at the time of his official visit here, and which he said he would place at the disposal of the Commissioners.

4317. (*Mr. Town Clerk.*) You have much practice both in Newcastle and in Gateshead?—I practice in both towns.

4318. Gateshead has been, you are aware, some time under the Board of Health?—Yes.

4319. Do you think it is much better in consequence?—I have not paid so much attention to the sanitary condition of Gateshead since the Public Health Act was applied there, and I am not in a position to speak positively to that point. I may observe that there was an outbreak of cholera at Broom Hill, thirty miles north of Newcastle; and I was requested to visit it and make inquiries, and suggest measures for the removal of the disease. It is rather interesting (as I believe there was not another case within ten or twelve miles), as bearing upon two points, upon the contagious nature of cholera and upon the predisposing influence of defective sanitary condition. It was very much a similar case to that of Whalton.

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4320. (*Mr. Simon.*) Will you describe the circumstances under which it occurred?—It is a colliery village, consisting of two rows of houses. A girl went from Newcastle there to visit her aunt; her aunt took ill, and six people died altogether there. I visited the place, and I found that, though some of the houses were of a superior class for pitmen's dwellings, and though some privies had been erected, and drains and trap gratings made, yet there were sanitary evils sufficient to explain the outbreak there. The children had lifted up the trap gratings and thrown bricks and refuse in, so as to block up the drain; the consequence was that impure water had accumulated along the whole extent ofthe drain, so as to make it an elongated cesspool, and near the head of this cesspool was the pump.

4321. Was the water contaminated?—It was. I examined the water, and there was evidently some organic matter in it; it was not clear, and was mawkish in its taste.

4322. Had it flocculi in it?—Slightly, not very large flocculi.

4323. Was this obstructed drain near the houses?—Yes, within four or five feet.

4324. And preventing the outflow from their privies?—The privies, I am sorry to say, were not very much used; and it is only fit, as I have been speaking of the defective sanitary condition of this town, to mention that, in that respect, as regards privy accommodation, all through this district there is great negligence. Dr. Gavin, I think, alluded to that circumstance. In this case certainly the people did not, I think, appreciate the privies properly, and they were in the same state as those in Rosemary Lane.

4325. (*Mr Town Clerk.*) They would not keep them clean?—No.

4326. (*Mr. Simon.*) Was the first case that of the girl who went from Newcastle?—No; that of her aunt, with whom she was stopping.

4327. She did not take it herself?—No; her aunt took the disease and died, and a cousin took it in the same house, and died also.

4328. Had the girl who had left Newcastle had diarrhœa?—I am not aware that she had; her mother died in Newcastle. That case seemed to me to be nearly approaching to the transmission of the poison of cholera.

4330. (*Mr. Town Clerk.*) You have no reason to think that other pit villages are in a better sanitary state than that you have mentioned?—I have not; but I may say that the owners and lessees of collieries are now paying a great deal of attention to the subject, and taking steps to have this remedied; but it will take time. The manufacturing villages, all down the Tyne, are in the same state.

4331. They are going to improve them now?—Perhaps they are.

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4332. (*Chairman.*) Now with reference to the conduct of the Board of Health or its officers?—In the first place I thought, and still think, that the Board of Health were tardy in not sooner taking cognisance and active notice of the fact of epidemic cholera being in this town. I addressed them on the 2d September.

4333. (*Mr. Simon.*) Has there been brought under your notice the fact, that you having written to the Board of Health on that subject on the 2d September, and your letter consequently having been received in London on the 3d; on that 3d September, the General Board of Health addressed a letter through its secretary to the Under Secretary of State for the Home Department, calling attention to the contents of your letter?—That has not been brought to my notice.

4334. (*Chairman.*) Are you at all cognisant of the proceedings of the General Board of Health, in consequence of your letter, in corresponding with the Home Office, or in any other manner, with a view to availing themselves of your information and suggestions?—I know nothing but the reply which they sent me.

4335. (*Mr. Simon.*) "The Board are anxiously watching the progress of cholera on the "Continent, and making the closest inquiry in their power into cases occurring in this "country." Is that rightly copied from the letter addressed to you?—Yes; that is rightly copied. Then when Mr. Grainger arrived, I gave him all the information in my power, and attended him to Sir John Fife and Mr. Newton; and it was certainly my wish to treat Mr. Grainger, and every other officer of the Board of Health, with every possible respect. I knew that the sanitary condition of Newcastle was bad at that time. I had paid attention to it for some time previously; and I felt that the most urgent and prompt steps would be necessary to prevent this epidemic from acquiring a hold in this district, and to prevent excessive mortality. I therefore, on the very day that Mr. Grainger arrived, urged upon him the importance of calling together the medical profession, and the influential inhabitants of this town, and of dividing the town into districts. I alluded to the benefit which had occurred on the previous visitation in 1831-2, and made these suggestions to Mr. Grainger in the presence of Mr. Furness. The impression on my mind is, that I also made the same suggestion on Monday the 12th; and when Dr. Gavin arrived I made the same suggestion to Dr. Gavin. I obtained Dr. Gavin's consent to call the medical profession together. I went to the Newcastle infirmary on the 18th, and requested the porter of the infirmary to convene the profession there, as being the fittest place. Mr. Gibb, the

surgeon of the infirmary, wrote me a letter, which I have in my possession, stating that he had seen Dr. Gavin and Mr. Grainger, and that they thought it better not to call the the medical profession together, but would consult with the poor law medical officers. *G. Robinson, Esq., M.D.* 20th Jan. 1854.

(The witness delivered in the following letter.)

"Infirmary, Newcastle-on-Tyne,
"Dear Doctor, "Sunday, half-past 1.

"I beg to inform you that I have seen Gavin and Grainger. They tell me it "would be useless to call the whole profession together, but intend to suggest to the "guardians, to-night, the calling of all the officials employed by the guardians together. "Of course the infirmary is at all times open, and most happy to be of use as a place of "meeting, &c., and I will do anything that is judged best to be done. They told me to "let you know this, and hoping you are better, believe me,

Yours truly, C. J. GIBB."

4336. (*Chairman.*) Then you complain that, after the arrival of Dr. Gavin, and at the moment, so to say, of Mr. Grainger's departure, those officers, according to information received by you from Mr. Gibb, declined to call together the whole of the medical profession?—And I complain further, that in the first instance, when I made that recommendation to Mr. Grainger, he also declined to do so, he said that it would create a panic. I repeated the suggestion as to dividing the town into districts, and getting the influential inhabitants in each district to co-operate with the resident medical profession at the board of guardians on Saturday the 17th instant; and if my recollection serves me correctly, I also made that recommendation on the Wednesday; but of that I will not be certain.

4337. Then your complaint amounts to this, that a suggestion made by you on the 17th instant, and perhaps on the 14th instant, at the Board of Guardians, for calling together the principal inhabitants of the town, as well as the medical profession, with a view to securing the co-operation of all parties who might be supposed to possess a moral influence over the people exposed to this epidemic, was not taken advantage of?—By the authorities, whoever they were, who had charge of the health of this town.

4338. Is there any other point?—I complain also that proper measures were not taken for protecting the health of the whole of the inhabitants of Newcastle. That seemed to be the fault of the system of the Board of Health, that they confined their efforts and machinery to the Poor Law organization; and therefore all those medical men, who either were not or could not act as assistants to the Poor Law medical officers, were not taken cognizance of by the Board of Health; and, as the health of the greater body of the inhabitants of the town was not entrusted to the Poor Law medical officers, no adequate measures were taken to protect the health of the community.

4339. Are you aware of the powers which the Act, under which the Board of Health operate, confers on that body?—Their general powers under ordinary circumstances I take to be very limited. I do not know the exact extent; but when the Epidemic Diseases Prevention Act is in force I take it that their powers are very great, and almost co-extensive with those of the Privy Council.

4340. Do you extend your complaint to this, that when the Order in Council of the 15th of September had put in operation certain extraordinary powers of that Nuisances Removal and Contagious Diseases Prevention Act, the Board of Health officers did not exercise those extraordinary powers with sufficient diligence?—I really do not know at this time whether the Board of Health officers had charge of the health of the whole town or not; therefore I might bring charges against the Board of Health officers, and it might be afterwards shown that the responsibility rested upon the board of guardians.

4341. It is matter of notoriety that ordinarily the Board of Health can act solely with and through the Poor Law guardians; therefore, if you complain that they only acted with and through the board of guardians, you must be supposed to complain of extraordinary circumstances and extraordinary powers; is that the fact?—I do not know the exact extent of the powers of the Board of Health; but in my opinion sufficient measures were not taken to protect the health of those inhabitants of Newcastle, who were not attended to by the Poor Law officers.

4342. Then do you complain of the operations of the Board of Health and of its officers, without knowing the powers which the Board of Health and its officers had to commence operations with?—I make a general charge against the authorities, whoever they were, who were then responsible for the health of the town.

4343. You complain then of certain circumstances that existed, without professing to have a legal knowledge of who was in fault?—Exactly.

4344. Is there any other point?—I should not have alluded to this circumstance, but that Mr. Grainger's last observation compels me to do so. I wished to pay Mr. Grainger every possible respect; and therefore in a hurried letter, which I wrote to the mayor under the emergency of the crisis, I certainly paid Mr. Grainger what I believed

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to be a merited compliment. He had called upon, I knew, and consulted with a great many of the medical men of the town, as to the extent to which the epidemic prevailed; and I imagined that he had also consulted with them to a certain extent as to the arrangements to be adopted, but I must say, that from that Wednesday the 14th, I thought that Mr. Grainger's measures were inefficient. I thought that he did not attend sufficiently to carrying out practical arrangements for meeting the disease, and I thought at the evening meetings of the board of guardians (I only attended two; one on the evening of the 14th, when I was taken ill of cholera myself; the other on the evening of Saturday the 17th when I was scarcely able to attend) that he took up too much time in giving popular lectures on sanitary reform instead of dividing the town into districts. I must also say that on the evening of Wednesday the 14th, a proposition was made by a member of the board of guardians, to authorize the medical officers of the board of guardians to employ as many of the junior medical practitioners in the town as they thought proper. That proposition was opposed by Mr. Grainger on the ground of its expense; and some dissatisfaction was expressed by some of the junior practitioners. And I complain in general terms, almost in the terms of Mr. Newton and Mr. Rayne, that as a body the medical gentlemen were not consulted or invited to carry out the arrangements, or as a body ever informed of the arrangements. To this day I do not know what arrangements were made; either the residences or names of the officers employed.

4345. There is no other point which occurs to you at this moment?—None other.

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GEORGE YEOMAN HEATH, Esq., sworn.

4346. (*Chairman.*) You are surgeon to the eastern dispensary?—I am.

4347. In 1849 you were one of the medical committee of the Newcastle and Gateshead Sanitary Association, and signed the report made by that body to Mr. Rawlinson?—I did.

4348. And you had charge of a district of this town during the recent epidemic of cholera?—Yes.

4349. What district was it?—Part of No. 4 district, Ballast Hills and St. Lawrence. I have here a plan of the district, with the houses in which cholera appeared marked in black.

4350. This is out of the old borough?—I am not very conversant with the precise boundaries of the old borough.

(*Mr. Town Clerk.*) It seems partially within the borough and partially without.

4351. (*Chairman.*) Will you confine your remarks chiefly to what seems to be within the borough?—The Ballast Hills, on the east side of the Ouseburn, is where I saw the chief amount of disease.

4352. In Lowrie's Yard also, and in that direction?—Yes, and in York Street.

4353. Was there a good deal of mortality there?—There were thirty-three fatal cases of cholera in the whole of that district, which alone contains, I think, under 3,000 inhabitants; by the last census somewhere about 2,750.

4354. In what state did you find the places in which the mortality took place?—Generally speaking, bad.

4355. As regards Lowrie's Yard, in what points did you think the sanitary state defective?—The houses in which the fatal cases occurred there form two rows of double houses, back to back. They are placed on a much lower level than the surrounding roads and ground, and close to the banks of the Ouse Burn. They are extremely damp. They have no drainage whatever, no privy and no ash-pit accommodation; and they have been shut up since the cholera, because no one can be found to go into them on account of their bad state.

4356. Are there any public privies in the neighbourhood?—There is one, beside which I have only been enabled to discover one other privy in the whole of that district, and that is a private one, in some new buildings which are now being erected.

4357. Then in this district, containing perhaps 3,000 inhabitants, you are not aware of any but one public and one private privy?—Only one public and one private privy.

4358. (*Mr. Town Clerk.*) How far does the district extend down to embrace your 3,000 inhabitants?—From the Ouse Burn up to the North Shields Road on the north, extending south east to the river, and then down the river eastward to St. Peter's, to the end of St. Lawrence.

4359. (*Chairman to Mr. Town Surveyor.*) What is represented on this plan is all within the borough?—Yes.

4360. (*To Mr. G. V. Heath.*) What was the state of the East Ballast Hills?—Generally the state, as regards drainage, is bad.

4361. (*Mr. Simon.*) Do you speak of surface drainage?—Surface drainage; there is very little drainage of any other description.

4362. Do you get puddles of filth there?—Yes; on the plan there, deposits are marked in a red colour; all those are ashes and refuse of every kind, thrown out in front of the houses; they are not regular middens; they are simply places where the people go and throw everything down. This one is on the brow of a hill, and in wet weather the filth runs down in streams to York Street, which is on a lower level.

4363. Were the houses there much crowded?—There is not so much overcrowding there as in some other parts of the town.

4364. (*Chairman.*) In these places about East Ballast Hills was there a want of pavement?—There is no pavement whatever.

4365. Any scavenging?—I should say there cannot be much scavenging, because this refuse is there still.

4366. (*Mr. Simon.*) And during the time of the cholera there were accumulations there, which had taken a long while to accumulate?—Some of them, I should say, must; some parts were removed by cartmen, but the lower layers of the heaps seemed incorporated with the soil. I should think they must have taken a long time to accumulate.

4367. (*Chairman.*) Do the same remarks apply to the houses in Quality Row?—The same as regards privy accommodation, or rather the total absence of it.

4368. Ash-pit accommodation?—I saw one ash-pit at the back of some buildings in Quality Row, very near to the houses, and leaking.

4369. You say leaking?—Yes, leaking in wet weather; running down towards the back doors of the houses.

4370. Do you mean mere rain-water leakage?—No, the leakage of the urine, and so on. It was a place for all kinds of refuse; they have no other place to deposit it in.

4371. Was there the same deficiency also as regards drainage, paving, and want of scavenging?—The whole of the open space in front of Quality Row is unpaved, and intersected by several open gutters, which are marked on that plan. The stream is very sluggish, and usually they are overflowing with slime and all sorts of filth.

4372. Quality Row, Lowrie's Yard, and East Ballast Hills seem to have been the great centres of mortality in that district?—Yes.

4373. (*Mr. Simon.*) What was the condition of the houses in those quarters, as regards cleanliness?—The inhabitants, generally speaking, were very careless.

4374. Were the houses dirty, in want of cleansing and lime-whiting?—Yes, in some parts very much so; a whole row of buildings called Deadman's Row, facing the cemetery, required whitewashing outside and in.

4375. (*Chairman.*) What was the state of that burying ground?—It was shut up during the cholera. It was very full.

4376. (*Mr. Simon.*) Speaking of the houses throughout that district generally, should you say that they were dirty or clean?—I should say there was a great mixture. Where the inhabitants were respectable working men they kept their houses as clean as they could under the circumstances; but where they were Irish or paupers, there the houses were very dirty. The inhabitants of the Ballast Hills and St. Lawrence, however, are chiefly working men and their families, potters, smiths, engineers, keelmen, wherrymen, &c. There are not many Irish, and comparatively few absolute paupers.

4377. (*Chairman.*) Are any of these houses to any extent below the surface of the soil around?—Yes; in York Street there are some cellars under some new buildings there, and two deaths from cholera occurred in those cellars. There are no cellars that I am aware of, except in that instance.

4378. Would you ever find the floor of the ground-floor rooms below the level of the soil around?—The whole of York Street is built upon a much lower level than the ground immediately in front of it, so that a great part of that street is below the level of the road passing in front of the houses. Those in Lowrie's Yard also were below the level of the ground near.

4379. So that there would be more or less a tendency to drain from the surrounding surface into the soil below the houses, if not into the houses themselves?—Yes.

4380. Are those houses boarded or bricked on the ground floors?—Most of the rooms upon the ground floor are either bricked or flagged.

4381. Were they ever so low as by their dampness to attract your particular attention?—Yes, in the rows of houses near the Raft Yard, near Lowrie's Yard; some of these houses are very damp.

4382. (*Mr. Simon.*) Did your district extend only on the east side of the Ouse Burn?—Only on that side.

4383. Can you tell us anything of the condition of the house No. 22?—This far I know of it: I attended a case of typhus fever in it about two years ago, and it is somewhat singular that there were no less than three deaths from cholera in that one house. It is near the river side; but it has a privy in the yard, and I was not able to detect anything further with regard to it.

4384. (*Chairman.*) Is this the one house that has the private privy?—I should correct what I have said. That is a house which I discovered only the other day, as having a privy, that is a second privy, in addition to the one which I originally mentioned.

4385. Then in fact there are two private privies in the district?—Yes. I did not remember that house when I spoke before.

4386. (*Mr. Simon.*) Have you any memoranda of the condition of these different houses in which cholera deaths occurred?—I have.

4387. Could you let us have a copy of them?—Yes. I have not got them here.

4388. Should you say that in any one of these cases where deaths from cholera occurred, the house was free from nuisance of one kind or another?—Some of the deaths occurred in the district before I was attached to it, and I cannot so well speak to the state of the

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houses in which those deaths occurred, but I should say that in all the houses where deaths occurred during my attendance, there was some point or other about the house which would render it likely that death should come there more than in another house.

4389. What do you think is the condition of the Ouse Burn, the stream itself?—It must contain a considerable amount of sewage; drains run into it.

4390. Have you passed over the bridge very often?—Yes.

4391. Do you find it offensive?—One of the large middens is very near the Glasshouse Bridge, over which I frequently pass, and that of course gives rise to an offensive smell.

4392. (*Chairman.*) Which side of the burn is that?—That is on the west side of the burn.

4393. (*Mr. Simon.*) Are those houses up by Ouse Burn Bridge in your district?—Yes; those houses consist in a great measure of pottery works and disused flax-dressing works, there are only a few dwelling-houses there; a good many of these too (*pointing to another part of the plan*) are works of different kinds. There are some chemical works here for making manure, artificial guano, and bottle works; works of different kinds which fill up these spaces.

4394. How many cases of cholera were there in the district altogether?—There were thirty-three deaths; the number of cholera cases I could not give you. I should think that nearly one half of the inhabitants must have had some form of choleraic disease. There was a great deal of diarrhœa.

4395. Do people complain there much of the absence of privies?—No one ever complained to me of it without the question being previously put to them; but then they complained, the women more particularly, whose office I suppose it is to empty the vessels containing these matters.

4396. Were those vessels usually emptied right out in front of the door?—I believe so.

4397. (*Chairman.*) What is the state of their water supply in that district?—They are supplied partly by the Whittle Dean company, and there are some pants in addition.

4398. Have they a good quantity of water?—I did not hear any complaint as to the quantity of water.

4399. (*Mr. Simon.*) Was there any paving at all?—One row called Fighting Cocks' Row, I believe, is partly paved; the rest of the district is almost entirely unpaved. A lane called Pump Lane is paved also partly, but the paving is in a very bad condition.

4400. (*Chairman.*) Was there any flagging along the footways, as distinguished from paving in the roadways?—In front of the southern extremity of Quality Row, near the cemetery, there is some flagging. The rest of Quality Row is not flagged, and as far as I remember, no other part is flagged.

4401. Generally speaking, we may say that the district is unpaved?—Yes, unpaved and unflagged.

4402. (*Mr. Simon.*) Have the houses usually ash-pits?—No, I should say not.

4403. So that these heaps of refuse of all sorts that were about the district come from all the houses; it represented all the refuse of the district?—For the most part.

4404. With the exception of a couple of privies which you recollect?—A couple of privies which I remember in private houses; I may say that I was shown a privy in the deserted flax works, but I am not aware that is used by any one. It had been put there for the accommodation of the workpeople when the flax works were employed, but at present I am not aware that it is used at all. It is up stairs in the second or third storey, and its contents would be shot out into the burn. There was a tradition also of another privy having existed in Quality Row. It had been within a house upon the stairs. It was very difficultly emptied, and upon some occasion it was broken or deranged in some way, and the contents flowed down the stairs inside, and the removal of it was petitioned for on that account.

4405. Was any quantity of rubbish or filth from surrounding districts shot on to any part of this district?—There are a great quantity of bricks and loose stones lying about in front of Quality Row, but I am not aware of any rubbish being shot there.

4406. (*Mr. Town Clerk.*) There is a great deal of open waste ground at the Ballast Heaps, is there not?—The Ballast Heaps are at the south-east end of Quality Row, but they are quite distinct from the ground in front of the houses.

4407. (*Mr. Simon.*) You mentioned a house in which you said, I think, that three deaths from cholera had occurred, and where previously you had attended a case of typhus?—Yes.

4408. Was there any other house in which you had as many as two or three deaths?—In one house in Day's Buildings, in an up-stairs room in the third storey, there were four deaths.

4409. (*Chairman.*) Where is Day's Buildings?—It is behind Dead Man's Row. There were two deaths from scarlet fever in the same room about a year or two years previously.

4410. (*Mr. Simon.*) Was it overcrowded?—The family consisted of a man and his wife, a boy and two children, and the two children, the boy and the wife died, leaving the man alone.

4411. Were they filthy in their habits?—They had only one room, and they were dirty, but not so excessively so as I have seen in other cases.

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4412. I suppose there was the usual amount of dirt outside the house?—In the yard in front of the buildings there was a large midden, apparently a public midden, which was much complained of by the inhabitants. It was full at that time; it appeared not to have been emptied for some time, and the opposite side of the house looks on to the cemetery; the room was at the back of Dead Man's Row, Dead Man's Row fronting the cemetery.

4413. Did the windows of this room look over the midden which you speak of?—Yes, one window.

4414. And did that midden receive excrements as well as ashes?—Yes.

4415. (*Chairman.*) Was there but that one window in the room?—Only one; it was a good-sized window.

4416. (*Mr. Simon.*) Was it a large heap, and had it been complained of?—It was complained of to me.

4417. Do you recollect any other house where there were several deaths?—There was one death, and two or three cases in the house at the end of Quality Row.

4418. At the north end?—At the north end. That house was inhabited by an Irish family, who were wretchedly poor. The room has a stone floor, and they lay upon the floor with very little covering.

4419. Were they upon the ground floor paved with stone?—Yes, flagged. The house stands back from the rest of the row, through a sort of narrow entry. It is at the foot of a bank, on the slope of which bank there is a large and very old deposit of ashes and refuse, coming from the backs of the houses facing the North Shields Road.

4420. From your diagram I infer that there were deposits on three sides of this unfortunate house, as there was a third deposit in the brick-field above, which you just now spoke of, where the ground sloped from the North Shields Road?—Not absolutely in the brick-field, but before you come to the brick-field. I will point out to you the particular deposit which I allude to (*the witness pointed out the same*). This brick-field is pretty clear; I am not aware of any deposit there, but there was a general deposit from the whole of these houses (*showing the same*).

4421. Did you find generally, on entering these houses, that there was a stinking atmosphere all about them?—In many of them, very bad indeed.

4423. Were you able in your own mind distinctly to associate all this death and disease with the physical circumstances you have referred to?—It was difficult to come to any other conclusion. The Ballast Hills is a very open place; there is a great deal of open ground around it and in it, and it seemed somewhat singular that there should be so many fatal cases there if they were not to be attributed to these other circumstances, which must have counteracted the otherwise good effects of these open spaces.

4424. Would that argument stop short at the Ouse Burn; if you got on the other side of it, and took the whole of Newcastle, what opinion would you form as to that?—The town generally appears to me not to be thoroughly cleansed and drained, not so well as it might be. I am not aware that it is in a worse condition than other towns. I am not so well acquainted of course with other towns, but I have gone through some of the low parts of Southampton, Glasgow, and Edinburgh, and from the superficial view that I had, I should have supposed that they were in perhaps as bad a state.

4425. Has your attention been drawn to the great absence of privies, and to the consequence of that great absence of privies in this town?—It has, in this very district.

4426. Are you aware whether that absence of privies exists equally, or nearly equally, in the rest of the eastern district of Newcastle?—I believe there is a great deficiency of privy accommodation generally.

4427. (*Chairman.*) Is there any other point on which you would like to offer us any information?—No, I think not.

The witness afterwards handed in a paper containing the details of the condition of each house in his district, in which cholera deaths had occurred, and concluding as follows:

"It appears, then, that altogether there are twenty-five houses, taking house to signify the room or rooms occupied by one family, in which fatal cases of cholera are ascertained to have occurred in this district.

"Of this number there are eighteen whose sanitary condition is distinguished as being either worse than that of the neighbouring houses unvisited by cholera, or, at least, worse than the general average of the district. In some of these eighteen, several different circumstances appear to have concurrently produced this defective sanitary state; for example, at 25 we find dampness, from the house being partially sunk in the earth, internal and external dirt, the absence of ventilation from the position of the house, and the near neighbourhood of the midden, co-existing with the poverty and wretchedness of the inhabitants.

"In other instances, one particular source of evil attracts notice, as at 15, where the existence of a collection of festering refuse under the room, reaching to its floor, must be supposed to have exerted a most prejudicial influence upon the health of its inhabitants. Again, at 16, a low room at the top of the house, retained for many

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months in a most filthy condition by an Irish family, and in which long sickness followed by two deaths had existed, is entered, unprepared by any cleansing process, by a family, also poor, who at least make no improvement in it. Here, we seem warranted in supposing that sources of impurity vitiating the atmosphere, must have hung about the walls, floor, and roof of the room itself.

"The houses, in which no decided sources of mischief (more than exist in the greater number of the dwellings in the district) have been traced, are 3, 5, 7, 9, 16, 17, and 19, but the cause of death at 3 is somewhat doubtful, and the child at 5 was weekly and ailing. Moreover, the deaths at 7, 16, and 17 occurred previous to my attendance; some particulars therefore may have escaped notice, and these houses do not certainly *excel* the average of the district in sanitary condition, but rather fall below it. 9, and 19, therefore alone remain exceptions to what otherwise would seem to have been the rule in this district, viz., that the fatal cases of cholera were found in those rooms or houses which were in the most defective sanitary condition. I might add to the above proofs of the connexion between filth, &c., and cholera, that in Albion Row, without question the most advantageously situated locality in the district, and inhabited by the most respectable class of inhabitants, no *fatal case* of cholera occurred, and, comparatively speaking, *little diarrhœa*.

"In conclusion, I may state, that all that I have seen of cholera in the last visitation in this town, and all that I have gathered from the experience of others, or learned by reading the accounts of cholera in other towns or countries, leads me to believe that, whether following it on a large scale, we trace the progress of this epidemic from country to country and from town to town, or, descending to details, we trace it in its course from street to street, and house to house, however it may sometimes *appear* to deviate from all law, on careful examination we shall invariably find it display its greatest virulence in those countries, towns, streets, or houses, where it is, as it were, invited by the poverty and misery of the inhabitants, their bad or deficient food, and the defective condition of their dwelling-places, as regards drainage, ventilation, and sanitary arrangements generally."

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HENRY P. ALLISON, Esq. sworn.

4428. (*Chairman.*) You are a surgeon in this town, I believe?—I am.

4429. How many years have you practised here?—Eleven years and a half.

4430. Is there any particular district of this town with which you are more particularly acquainted?—I assisted in the No. 2 district during the cholera last year.

4431. What part of it?—I had the charge of the whole of that part of Mr. Newton's district east of Pandon Dean, Pandon Bank, Argyle Street to the river side, including the west half of Sandgate, and the whole of the buildings between Sandgate and the Shield ield, and also the Shield Field.

4432. In what state did you find the Shield Field?—The houses generally, I think, are not very well accommodated as regards sanitary conditions.

4433. Is there much paving about there?—It seems to be pretty well paved now, I think, with the exception of Sanitary Place, Temperance Row, Camden Street, and Franklin Street, which have all been finished some years, and of others which are only in progress.

4434. And as to scavenage?—That I think was rather defective in Carlton Street; Carlton Street appeared to be the worst when I was in attendance.

4435. How is the drainage about there?—I did not examine it particularly; but I hear it is not very good.

4436. You did not happen yourself to see any instances of want of drainage?—No.

4437. Did a good deal of mortality occur in the Shield Field?—There was a good deal in the Shield Field, that is, among the parochial patients. There were thirteen deaths among those I saw.

4438. What was the nature of the accommodation there for the removal of fœcal filth?—They have privies I think generally to the houses. I observed that there were three inside the houses; two in Franklin Street, and one in York Street.

4439. How did they keep them?—I did not examine them particularly.

4440. You had not occasion to notice whether they were properly emptied and cleansed or otherwise?—No, not there.

4441. Coming down a little lower had you charge of the Ridley Villa district?—Yes, I had.

4442. Do you know anything of the sanitary state of those houses?—I believe they are tolerably good.

4443. Did you become acquainted with the state of the lane behind Ridley Villas?—No.

4444. Is there any other part of that district to which you could speak confidently?—I think the worst is part of Gibson Street, Melbourne Street, and Buxton Street.

4445. Forming a sort of triangle?—Yes; the centre is occupied by the butcher market; around which, and communicating with the back doors of the houses, there runs a narrow passage, not more than three and a half feet wide, into which the contents of the privies

and ash-pits are emptied, before removal in wheelbarrows. In September and October last, most of the yards and privies of these houses, and also this passage, were in a most filthy condition, and there was great mortality all about the place.

4446. You had occasion to notice that?—I noticed it particularly; the ash-pits were all full, so far as I saw, where the deaths occurred, and the privies in a filthy state.

4447. You saw no signs of their having been regularly emptied and cleansed?—No; the inhabitants are obliged to do it themselves, and I suppose quarrel about the payment; and so they are generally neglected. I believe it is a general complaint there.

4448. I suppose in such a district anything like thorough ventilation is impossible?—It is not good.

4449. They have no more that six feet between them and a high wall?—Between them and a high wall there is not six feet; it is a narrow passage, I think about the width of this table.

4450. Do you know Richmond Street and Howard Street?—I know them pretty well, but that is out of my district.

4451. Coming lower down is there any part to which you would speak?—Blagden Street, Bedford Street, and the Garth Heads, I think, are all generally defective.

4452. In any particular point, or generally?—At the Garth Heads it is very bad. It is not paved. There are flags in the front of Garth Heads, but the houses always have a very disagreeable smell.

4453. Have they privies about there?—I believe they have, some of them. I do not know that they all have. I cannot speak to that.

4454. With regard to any other part of your district, coming lower down, have you anything to state?—I may say that between Sandgate and the Shield Field I had forty-two deaths.

4455. In your district?—In my district, that I attended.

4456. Have you any notion what the population of the district might be?—No.

4457. Is there any other point that you can speak to, as to Sandgate or eastward?—Sandgate has been pretty well described. I may say this, that in Sandgate, so far as my experience goes, the majority of the deaths and seizures of cholera were amongst the Irish population. Comparatively few of the Sandgate population died.

4458. Of the natives, or English, you mean?—Of the natives, compared with those in the overcrowded Irish lodging-houses.

4459. Was there much overcrowding in the Buxton Street and Melbourne Street district?—Generally a family lives in one room.

4460. But they do not take in lodgers as the Irish do?—No, I believe not.

4461. Did you, in your experience, come across any case of a cluster of deaths in what you would have considered to be a well-conditioned place in sanitary respects?—I think the only case that occurs to me was that mentioned by Dr. White, in Regent Terrace. I attended with him. There were two deaths.

4462. We have had evidence since as to the condition of the houses in Ridley Villas, and as to the neighbourhood. You do not know of any other more striking case than that?—No, that is the most striking case, because I believe the house is in really very good condition; it is supplied with a water-closet, and I have been very much in the house, and never perceived anything offensive in it.

4463. Is there any other point on which you could favour us with your views?—I know that St. Anne's churchyard is again opened for interments. I saw a burial in it a few days ago.

(*Mr. Town Clerk.*) St. Anne's is one of the churchyards that Lord Palmerston's order does not at present apply to.

4464. (*Chairman.*) But it was closed during the epidemic?—(*Mr. Allison.*) Yes.

4465. (*Mr. Town Clerk.*) Were not there a large number buried in St. Anne's?—There were 492, I believe, buried there within a month. After that it was closed.

4466. (*Chairman.*) About what time?—I think it was closed after the 3rd of October.

4467. (*Mr. Town Clerk.*) You do not see any objection to burials there, do you?—I believe it is complained of by the inhabitants about there; in St. Anne's Row they complain very much.

(*Mr. Winter.*) They only complained during the epidemic, in consequence of so many burials taking place there.

4468. (*Chairman to Mr. Allison.*) Speaking generally, what was the state of the district that you had charge of during the time of the epidemic as regards cleanliness and wholesomeness?—Certainly the houses of the poor were not in a proper state.

4469. In what points?—There was a very disagreeable smell in many of them.

4470. Could you trace it to any particular source?—Generally to the kits, and want of cleanliness.

4471. Did you find them habitually throughout that district in the rooms?—More particularly in Sandgate, among the Irish.

4472. So as to be actually offensive when you entered?—Yes.

4473. Did you find much overcrowding except amongst the Irish in Sandgate?—Not further than single families occupying single rooms. In Gibson Street I attended one family that were all swept off but the husband.

4474. How many in number?—I think five.

H. P. Allison, Esq., 28th Jan. 1854.

4475. Five out of six?—Five out of six in an upper room. That was on one side of the Butcher Market, of which I have spoken. There is a row of cottages at the head of Stepney Bank, too, that I think is in a very unwholesome state. The wall is exceedingly damp. You can see the effects of it for about a yard and a half of the wall in each cottage.

4476. Are they built against the bank?—They are not built against the bank exactly, but there seems to be a good deal of soakage from the earth at the back. The water does not appear to be properly taken off from the roof, and it runs down and soaks in. In one of these houses I had five cases of cholera, and two died; all very bad cases.

4477. In reference to that room where five out of six died, was there anything peculiar about it?—No, excepting, I think, the excessive filth of the people. They appeared to be very dirty; but it was in an upper room, where the ventilation was much better. The door is on one side of the room and the windows in front, so that you cannot carry it out better.

4478. You think they were dirty people?—I think so.

4479. Then perhaps you would attribute some of that extraordinary mortality of five out of six to their personal uncleanliness?—Yes. There was a great mortality also in the cellar-kitchens round this market.

4480. Had you occasion to go into those cellars to attend patients?—Yes, very frequently.

4481. Did you ever notice any damp?—They are certainly not dry and wholesome; they are very bad some of them.

4482. Some of them, I suppose, would come under the appellation of filthy and unwholesome?—Yes, they are not fit for human habitation.

4483. Were there any others in your district to which you think those expressions would apply?—There are many certainly in Sandgate of that description which were not fit for human habitation.

4484. About what part of Sandgate?—The west-end from the Swirle and Wood Entry to the quay, but more especially in the lanes and alleys.

4485. Do you think that they could easily be rendered fit for habitation?—I think there would be a difficulty in it.

4486. And the houses built round the slaughter market which you mentioned, the lower parts of those houses?—I think, excepting the cellar-kitchens, they might with proper care and cleanliness be kept in a decent state; but I believe that much is owing to the negligence of the tenants; one will not pay for the emptying of the ash-bin, and another will not; and so of course it goes on.

4487. It is not in your judgment that they have any difficulty as to getting the middens emptied, but that they will not agree so as to have it done?—No; still the place appears to be built on a very bad plan; this passage between the yards and the market being too confined.

4488. But still a great deal of the mortality there you would ascribe to personal uncleanliness or negligence?—Yes.

4489. Is there any other point upon which you would like to speak?—No, I think not; I do not remember anything particular.

4491. (*Mr. Town Clerk.*) Gibson Street, Melbourne Street, and Buxton Street I think you stated to be the worst in that part of the district?—Yes.

4492. They have been built for years back, and by individual speculators, I think?—I believe principally.

4493. You have been some time resident in that district?—Yes, for nearly twelve years.

4494. Have you perceived any improvement in the scavenging, the paving, the sewering, and the draining during that period?—There has been considerable improvement latterly; Gibson Street has been nearly flagged, and other improvements of that kind are in progress.

R Grainger, Esq., 26th Jan. 1854.

RICHARD GRAINGER, Esq., sworn.

4495. (*Chairman.*) You have resided for a good number of years in Newcastle?—A great number; all my life; I am a native of the town.

4496. Are you a builder and an architect?—Yes.

4497. You have built a good many new streets in this town?—A great many.

4498. (*Mr. Simon.*) Can you enumerate them?—A few of them; I have built part of New Bridge Street, Carliol Street.

4499. Will you tell us the total of the houses you have built in the town?—I cannot give you it exactly, but I can approximate to the number. I have built in Carliol Street nine houses.

4500. (*Chairman.*) And in New Bridge Street?—Five; Croft Street.

4501. (*Mr. Simon.*) How many?—Five; Portland Place, in New Bridge Street.

4502. (*Chairman.*) Are these distinct from the other five houses you mentioned in New Bridge Street?—Yes. Northumberland Street, one house.

4503. How many houses did you build in Portland Place?—Not more than three, I dare say. Thirty-one in Blackett Street, twenty-two in Eldon Square, three in Newgate Street, nine in Percy Street, sixty-eight in Leazes Terrace, eighty in Leazes Crescent, and other streets adjoining; fourteen in St. James' Street and Terrace, the whole of the Royal Arcade, where the post-office is.

4504. (*Mr. Simon.*) How many houses does that take in?—They are not used as dwelling-houses; they are used as offices. There are the post-office and shops, the excise office, and the bankruptcy courts and other offices connected, and two banks. Grey Street I built entirely.

4505. How many houses?—Eighty-one houses. Market Street, the whole, consisting of thirty-eight houses; Grainger Street, sixty-eight houses; Nun's Street, the whole, twenty-six houses; Nelson Street, the same number, twenty-six; Clayton Street, 107, the whole; Clayton Street West, twenty-seven, the whole; Hood Street, sixteen, the whole; Shakspeare Street, the whole, sixteen; Pilgrim Street, a part, fourteen; Nun's Gate, six, a part; Rye Hill, twenty-three; Elswick, nineteen; Railway Street, twenty.

4506. Are these houses of different grades?—Those in the centre of the town are generally places of business; shops below and dwelling-houses or warehouses, above.

4507. (*Chairman.*) Grainger Street, and Clayton Street, and Market Street, and so on?— Yes, they are nearly all places of business.

4508. (*Mr. Simon.*) If we take the eighty-one houses of Grey Street, for instance, will they give a fair sample of your town architecture?—Yes, I think it is equal to any other street that I have built in point of architectural appearance.

4509. What arrangements have you made in the construction of Grey Street for drainage?—You will see, by referring to this plan, what has been done towards the sewerage (*handing in the same*). The houses which I have built I have coloured pink. I have put a sewer up Grey Street, from Mosley Street to Blackett Street.

4510. Did you build that sewer yourself?—Yes.

4511. (*Chairman.*) Is it your own private property?—No; it belongs to the corporation. I transferred it to them.

4512. When was that?—It was built from 1834 to 1840.

4513. Have all these houses that we see here in Grey Street, Market Street, Grainger Street, Clayton Street West, and so on, water-closets?—I can give you the number in each street (*handing in a paper*). When Carliol Street was built, water-closets were hardly introduced.

4514. In Grey Street, with eighty-one houses, I see you have 162, or two water-closets to a house?—Yes.

4515. And two trap sinks to every house?—Yes.

4516. And no privies?—No privies in Grey Street.

4517. (*Mr. Simon.*) As regards those trap sinks, I presume that all that you can pledge yourself to is, that when you constructed the house you put traps in there?—Yes, they must cleanse them themselves.

4518. You do not mean to speak of their present state, of course?—We generally get to know if they are out of order.

(*Mr. Town Clerk.*) That property belongs to Mr. Grainger still, and consequently he knows their present condition.

(*Mr. Grainger.*) There is a cock of water generally placed above the sink, supplied with a trap.

4519. (*Mr. Simon.*) Through a cistern?—Most of those houses have cisterns. At the time these warehouses were erected, we were under the necessity of having them, because we had an intermittent supply; but since the Whittle Dean water company has been established, it is very different; we can now get a supply constantly from the pipe.

4520. Have you generally, in constructing your new streets, constructed the sewers yourself?—Generally; not in all cases. In Blackett-street the corporation constructed that sewer, and they contributed to a portion of this sewer (*showing the same*), and likewise through another street a portion.

4521. How is it that in Blackett Street you have privies in nearly all the houses?—Because they were built at an earlier date, and are smaller houses.

4522. In Leazes Terrace I see that you have a privy also in each house, and in Leazes Crescent only privies?—Yes; if you look at the dates, they will explain it.

4523. Are these houses without back yards?—These have back yards, (*showing the same,*) but the back yards are converted into places of business and into extensions of the shops.

4524. Covered over?—Covered over with glass.

4525. Are they defective in ventilation?—There are very large windows; there are windows both back and front. I think they are perfectly ventilated.

4526. But are they much blocked up behind?—Not these houses, till we get so far down, (*showing the same*) when we come to other houses which were erected before these.

4527. (*Chairman.*) Have you had any complaints about the state of your sewers here. Do they get out of order?—This has, in one instance or two been flooded, owing to the flow of water in heavy rain coming down here; and it is not of sufficient capacity, I think, to take off the whole of it. But I am proposing a plan which will relieve it.

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4528. You have no cognizance of the sewer in Collingwood-street?—No.

4529. Have you, in any of your sewers, had that occur which has been stated to us to occur not unfrequently in the sewer in Collingwood-street, namely, that after floods of rain the gases are backed up and thrown into the houses?—I have not heard any complaint. Most of these sewers, those in all the principal streets, have stench-traps put in; they are properly trapped.

4530. (*Mr. Simon.*) Are the sinks in the back yards trapped?—Yes, they are all trapped; there is generally one in the area for slops; one in the kitchen, and one up above, near the water closet.

4531. Should you say generally, for all the houses, that they are trapped?—They are generally trapped. I do not know any that are not trapped.

4532. You have erected half the water-closets in Newcastle I think, or more?—There are a great number, 1062.

4533. In how many houses?—I think there are 765 houses, speaking from recollection. Between 700 and 800; there is on the average about one and a half for each house.

4534. Referring to your change of system, between the earlier years when you gave your tenants only privies, and the present time when you give them water-closets, what induced you to adopt the modern alteration?—At the earlier period they were very little used on account of the expense; but having built such a valuable class of houses, it was found necessary to introduce those closets; people expected them.

4535. Do you consider them an improvement upon the privies in regard of health as well as comfort?—I should think so; there is very little effluvium comes from them. It is just temporary, when the trap is drawn; and these closets are generally well ventilated, and I think they are much better in the interior of the house than in the exterior. They are more convenient, and I think they are less objectionable on this ground, that, when on the outside, the soil-pipes are apt to get frozen up; and we all must admit that they are more comfortable if they are only properly ventilated.

4536. Have your water-closets frequently got stopped, flooded, or out of order?—Sometimes the servants put improper things down, and they get stopped; but they are soon set right again, by a proper person being sent to see to them.

4537. There has been a good deal of talk about stinks in some of the houses furnished with water-closets; do you think that that has frequently been the case with yours?—Very seldom; if they are carefully attended to, there is seldom any smell from them.

4538. Having made most of these ten or fifteen years ago or more, I suppose you generally used brick drains for the water-closets?—Principally brick; here is a section of them.

4539. (*Chairman.*) A pipe in fact?—Yes, but made of brick, a cylinder drain formed of bricks.

4540. (*Mr. Simon.*) Have you had any opportunity of observing whether they are kept well?—They get stopped occasionally; the rats get in; but very rarely.

4541. Are you laying any pipes in the houses which you are building now?—We are laying some pipes; pipes were very little used at the period when these were formed.

4542. (*Chairman.*) On the whole the inconveniences arising from such accidents are not sufficient to discourage you from the use of water-closets?—No, they are great comforts, and there is the greatest cleanliness attending them compared to what there is amongst the filthy privies. I believe the privies will go out of use now, chiefly on account of the constant supply from the Whittle Dean water company. Instead of costing perhaps 20*l.* or 25*l.*, as used to be the case, we should be able to erect one for about 3*l.*

4543. (*Mr. Simon.*) Shall you be able to dispense with cisterns for the water-closets?—I think we might.

4544. (*Chairman.*) I see that at Leazes Terrace you drain to the back?—Yes.

4545. That of course would be a preferable principle whenever you can manage it?—Where it can be managed.

4546. So as not to carry the drains through the house to the front, but to carry them right away at once to the back?—Yes to the back yards.

4547. You can thus make it answer for both sides, where the back yards of two rows of houses adjoin?—Yes.

4548. (*Mr. Simon.*) Do you happen to know what extent of cholera there was in your houses?—I knew of many cases, but I cannot speak to the exact number; I dare say there were deaths occurring in all parts of the town.

4549. In what parts of your property has it happened that the sewers have got out of order, or that the water-closets have been obstructed?—In Nelson Street. This sewer comes down to it, (*showing the same*) and this down Blackett Street from the Leazes Terrace. That comes down Gallowgate along Blackett Street, and connects itself, and runs through into the Grainger Street drain: it is not of sufficient capacity to pass the whole of the water in heavy floods.

4550. Did heavy floods happen there last summer?—I believe it was last summer.

4551. Do you recollect in what month?—I do not; it has been complained of.

4552. As regards stoppage of the house drains from other causes, has that occurred also?—We have very little of that; there is a good supply of the company's water and we have had very little complaint about stoppages of the drains. There have been some owing to the servants putting down broken pots, and scrubbing-brushes, and cloths, and those sort of things; but on the whole we have very little reason to complain.

4553. (*Chairman.*) Do you know whereabouts on your property you had the greatest amount of loss by cholera; do you remember any particular streets in which there was much?—There were several deaths in Clayton Street; two deaths in this house (*showing the same*), one in that, one in that, and one in this.

4554. There were five deaths in ten houses?—Yes.

4555. At the corner of Clayton Street and Fenkle Street?—Two deaths in that house.

4556. But in the group of ten houses from that corner along Clayton Street there were five?—Yes.

4557. (*Mr. Simon.*) Are there no privies in those houses?—None; two water-closets in each, at least there will be. The houses are not finished. There is one for the lower part. There are two in this corner house; that is the only house that is finished; the shops are also occupied, and they have each a water-closet.

4558. Was there at that time any privy in the house?—None.

4559. The sewer passes down the street, of course. Is there a sewer grating at that corner?—I think there is.

4560. (*Chairman.*) Whereabouts is the grating?—I think it will be in the gutter, just at the corner. I think there are grates on each side of the street.

4561. Was there any mortality on the other side?—I do not know that there was; I think not.

4562. And this corner, on the opposite side of Fenkle Street is unoccupied (*pointing to the plan*)?—It is used as a smithy and livery stables. There are no dwelling houses there I think.

4563. Is there any other place you can mention about here, where there was any considerable mortality?—I think there were two in Nuns' Street, one here (*showing the same*), and the other nearly opposite.

4564. Do you know of any particular circumstances affecting that spot?—No; he was a healthy person; a hair dresser.

4565. What is this?—Nuns' Lane.

4566. Is it inhabited?—Partially; it is merely a passage.

4567. What is the condition of the property behind here; is it inhabited or open?—It is inhabited; the houses at Nuns' Gate and Newgate Street extend so far back with manufactories and workshops.

4568. What is this leading out of Clayton Street into Fenkle Street?—Low Friars. It was the principal thoroughfare from that part of the town to this, till Clayton Street was formed.

4569. What is the state of the property there?—It is a sort of tenemented property. There was a tanyard here, but it was given up two or three years ago.

4570. Do these lines indicate entries, consisting of tenemented property?—They do.

4571. Is there tenemented property on this side also (*pointing to the plan*)?—These are self-contained houses. There is a Baptist Chapel there, called New Court Chapel, and there are respectable houses.

4572. What is this blank corner space?—The town clerk's residence. There are workshops here (*showing the same*), and down here it is chiefly occupied by small tenants.

4573. Tenemented property?—Tenemented property.

4574. What is that (*pointing to another part*)?—Several tenemented houses.

4575. In fact that side is worse circumstanced than this?—This is Westgate Street; these are shops and houses; they do not belong to me.

4576. This side of the street, I mean, is worse circumstanced, apparently, than the other, though the mortality was greater on that other side than on this?—Yes, but there are respectable houses there; also in Charlotte Square.

4577. Do you know what these entries are called?—It runs up to the Friars.

4578. (*Mr. Simon.*) That is a nasty neighbourhood?—Yes, it is not a good neighbourhood.

4579. (*Chairman.*) In fact, this part of the town, about Clayton Street and Fenkle Street was pretty well surrounded by bad property?—Yes, a mother and child died next to the town clerk.

4580. Was there any grating or gully hole there, in the Nun's Street case?—Not exactly there; there is one at the corner.

4581. But it was not in the houses next to the grates that the deaths took place?—No, and these gully holes are trapped.

4582. Are they trapped in Clayton Street?—They are not trapped along there.

4583. You never heard any complaints of those grates?—Not any.

4584. (*Mr. Simon.*) What is your level there?—It varies. It runs from one in thirty to one in sixty in the sewer.

4585. I do not mean the level of the sewer, but the height of the ground there above the river?—I cannot inform you exactly. I should say 150 feet.

4586. (*Chairman to Mr. Dobson.*) Can you give us the height at the junction of Newgate Street and Clayton Street?—130 feet.

4587. (*To Mr. Grainger.*) And the fall to the corner is very trifling?—Very little; about one in sixty.

4588. (*Mr. Simon.*) Are the basements dry there?—As far as I know they are well-drained.

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4589. (*Chairman.*) The soil is clay?—It varies.

4590. From house to house?—Within a short distance. We have a good brick clay; and then very likely a wiry strong material that you can hardly cut with a spade. A short distance from that again a dry sand, and a very short distance from that a quick sand. It varies very much: so much so that in some instances I have had to excavate for foundations to the depth of nine fathoms.

4591. You never there get down to the blue clay below?—No.

4592. You were going to mention a third case, beside the Clayton Street and Nun's Street cases?—In Nelson Street, in one house, a man and his wife died, who were basket makers. I do not know that there were any more in Nelson Street than those two.

4593. And in the rest of your district?—A man and his wife died in Grainger Street.

4594. Just opposite the Central Exchange?—Yes.

4595. (*Mr. Simon.*) You have built about seven or eight hundred houses?—Yes, nearly eight hundred houses. There was a death also in Market Street, the other side of the Exchange: two died there. I think there were one or two deaths at the Terrace. That is high again.

4596. And in an open situation?—In a very open situation. It is an open space of several hundred acres of grass land.

4597. Do your tenants there complain at all of the midden which has been established in that neighbourhood; a great heap of city refuse which is collected there?—I was not aware of it.

4598. (*Mr. Town Clerk.*) It is not near enough to affect your tenantry?—I should think not.

4599. (*Chairman.*) On which side of Leazes Terrace did these deaths occur?—On the west side, I believe, and one at this end.

4600. They have in Leazes Terrace privies as well as water-closets?—There are not many water-closets in Leazes Terrace.

4601. You have put down here one for each house, and one privy for each house?—Yes, that is quite correct. I was meaning Leazes Crescent, on the other side.

4602. In Leazes Crescent we have no water-closets?—No; there are eighty privies, but no water-closets at all.

4603. With reference to Carliol Street, there was a considerable mortality there?—Not that I heard of; the gaol forms one side of Carliol Square.

4604. There was a death or two in Eldon Square, where they have privies?—I think there were two or three deaths there.

4605. What is the nature of the drains that come under the houses there; are they of brick?—Principally brick, and square.

4606. Was there any degree of obstruction that you heard of?—Not that I heard of.

4607. Had you any mortality in Grey Street that you know of, where there are two water-closets to a house?—I do not think there were any deaths there; at least I have not heard of any; there may have been.

4608. In Grainger Street, I think you said there was one?—Two deaths at least in Grainger Street, near the Central Exchange.

4609. Although that house will have had two water-closets in it?—Two water-closets; yes.

4610. Where did the people live; in the house itself?—They carried on business in the shop, and they lived above the shop.

4611. They had the house to themselves?—The house and shop; they both died.

4612. (*Mr. Simon.*) I suppose they belonged to a class of people who were not very likely to divide the house?—I do not know that there were any more but themselves in that house; he was a merchant tailor.

4613. (*Chairman.*) In Clayton Street you had five deaths in ten houses?—Yes.

4614. Were there any more in Clayton Street?—There may have been, but I do not recollect I know of those by passing their places every day, and their being my tenants.

4615. Do you know any point or points in which those ten houses in Clayton Street differed from the other 102 houses in the rest of the street?—I know of no difference, only that they had no back windows: they are single houses, and have only front windows.

4616. No ventilation through?—No thorough ventilation.

4617. Have the rest of the houses?—Most of them; not all of them.

4618. With regard to those in Nun's Street, the same did not apply?—No; they had thorough ventilation.

4619. And behind they had, as you say, factories and shops?—Yes, on one side, and the general market on the other, which is a very large open space, well ventilated inside.

4620. (*Mr. Simon.*) In Grey Street, do most of the people who have shops reside there also?—Some of them do; but some of the houses are occupied as offices.

4621. Exclusively as offices?—Exclusively as offices.

4622. (*Chairman.*) Were these houses at the Central Exchange, which you speak of, houses having through ventilation?—I think that one has.

4623. And those on the other side?—There are very few dwelling-houses round the Exchange, except one here connected with the hotel (*showing the same*).

4624. On this side was there ventilation through the house where the people died?—I could not speak to that, but I could ascertain it for you, if you wish to know.

4625. None of these people sleep in their lower rooms; they sleep in their upper rooms?—The whole of them do; the people are too respectable for that.

4626. Had none of those ten houses in Clayton Street where the five deaths occurred any through ventilation?—None except one, I think.

4627. Which is that?—It is the corner one.

4628. (*Mr. Simon.*) Where the two deaths occurred?—Yes; they have windows in Clayton Street, and in Fenkle Street.

4629. (*Chairman.*) At right angles to each other?—Yes.

4630. (*Mr. Town Clerk.*) Nobody as yet inhabits those houses that have not through ventilation?—No.

4631. (*Chairman.*) The people who died there resided there, did they not?—They resided at a distance, but until they were taken ill they kept to their place of business.

4632. They did not sleep there at night?—No; I believe the fruiterer did. This person slept there (*pointing to one of the houses*).

4633. (*Mr. Simon.*) Where did the other parties sleep?—At a short distance; perhaps in Blenheim Street, or some of those streets; but at the corner the party occupied the house. That is where the two died. That is the only house which is finished.

4634. (*Chairman.*) At the extreme houses, Nos. 1 and 10, as we may call them, the people resided and died there?—Precisely.

4635. And No. 1 had windows on two sides at right angles to each other?—Yes.

4636. (*Mr. Simon.*) Do you know which occurred first of that lot of cases?—I think the two deaths in the corner house.

4637. (*Mr. Town Clerk.*) Did Danby's case in Nun's Street occur at an early or late period of the epidemic?—I think he was almost the first that died.

4638. (*Chairman.*) Was that on the market side?—On the market side, yes.

4639. Had he through ventilation there?—I think he had.

4640. What does the back of the house look upon?—On the roof of the market, a very large space.

4641. (*Mr. Simon.*) There is no grating in the market, is there?—Not any.

(*Mr. Town Clerk.*) It is peculiarly well ventilated and very clean.

4642. (*Chairman.*) As to the two houses at the Central Exchange, you are not sure, but think they have through ventilation?—I think that house has (*showing the same*).

4643. Were any of the others who died in the same position, viz., that they did not reside, but merely had shops in the locality?—The other three had shops, but did not, I believe, reside at the place.

4644. Then are we to understand you to say that out of these deaths which you have alluded to, only the two parties at the corner of Clayton Street were residents?—I think so.

4645. (*Mr. Town Clerk.*) Does that observation apply only to the deaths in Clayton Street, or to the deaths which you have mentioned generally; for instance, did Scott, the tailor, live on the premises?—Yes, he lived above his shop and occupied the entire house.

4646. (*Chairman.*) Is that at the Central Exchange?—Yes, in Grainger Street.

4647. (*Mr. Town Clerk.*) You spoke of a sewer in Nelson Street being flooded?—Yes.

4648. Has it frequently occurred?—It has occurred twice, I believe.

4649. Since it was built?—Yes.

4650. How long has it been built?—From 1834.

4651. You have not brought it before the Town Improvement committee, have you?—I think the town surveyor knows it, and he knows the cause of it too.

4652. (*Mr. Simon.*) Do you believe that there is any deposit in any of these sewers?—I do not expect that there is. They have, particularly that in Grey Street, a considerable fall.

4653. (*Chairman.*) You once had a notice from the Board of Guardians, through the inspector of nuisances, as to one of these sewers; do you remember which it was?—It would be the one that I name; there is not sufficient capacity in this sewer in Grainger Street to receive all these floods of water.

4654. Do you remember any other cases in which your own property was brought under notice in that way?—I think not.

4655. Would the obstruction have been in Nelson Street?—No, I think it would have been in Grainger Street; they all come into Grainger Street.

4656. You have three flowing in, and one flowing out at about the same spot?—We have this flowing in, (*shewing the same,*) this down Blackett Street flowing in, and that through the hospital property, all flowing into the Grainger Street sewer.

4657. It flows into Nelson Street first?—Yes, near to Grainger Street, and then goes into Grainger Street. There is not capacity enough for the water in heavy thunderstorms.

4658. Is that all that it amounted to, merely an obstruction during some hours, while the storm water was passing off?—Yes.

4659. Do you know anything of the arrangements for cleansing and emptying the privies, or do you leave that to the tenants?—The tenants see after that; there is a back way out for the soil.

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4660. They are not obliged to carry it through the houses?—No. Those in Carliol Street are small houses, and they have a road out through Croft Court.

4661. Are they in connexion with ash-pits generally?—These four houses in Carliol Street have no ash-pits. I think they put their ashes out for the dustman to take away.

4662. Are those the houses which have a back way out?—Yes, through Croft Court into Croft Street.

4663. And these others all have a back way out?—They all have a back way.

4664. Supposing any nuisance to exist with regard to privy, or ash-pit, or these things, a notice from the inspector of nuisances would be given to your tenant, and not to you? It would be given to the tenant.

4665. You would not hear anything of it?—I should not hear of it.

4666. Is there any other point on which you can give us any information?—I have merely to observe that the town, since I have known it, is in a very different state. Its sanitary condition is very much improved.

4667. Do you mean in this district?—In this locality and the town generally; but I am more particularly acquainted with this district. Blackett Street, when I first knew it, was unpaved; and, as some one observed to-day, it was middens from nearly one end to the other.

4668. (*Mr. Town Clerk.*) With some dwellings mixed?—With horrible dwellings, very inferior houses, and pig-sties. Blackett Street was a filthy place, and the Nuns' property was in as bad a condition. All above the High Bridge is the Nuns' property; that was in a most terrible condition. And that place was horrible; it was let to all sorts of people, coal buyers, cowkeepers, pig-jobbers, and so on; and had it not been for the corporation complying with my request (and it will reflect honour on them, and on the town clerk here, so long as it is known), what I have done could not have been effected. It was by removing the market from where it was.

4669. (*Chairman.*) Where was the market?—Below the High Bridge, and it went down nearly to Moseley Street.

4670. Very inferior in size and accommodation to the present one?—Very much so to the new market; but the corporation, by allowing that to be removed, enabled me to carry out my plans in the manner you see.

4671. (*Mr. Town Clerk.*) It was not a very popular measure?—It was not; but certain parties were willing to assist in the matter, and did assist me so as to carry it. The corporation complied, and it has been of the greatest service to the town in consequence.

4672. (*Mr. Simon.*) Does your Clayton Street sewer ever get flooded with the water from the Leazes?—It is taken in this direction now (*showing the same*). There is an open ditch, very filthy, as I have shown it here. Now I wish that to be covered over and continued along here to cross this street, which would be of the greatest service, instead of its being a nuisance.

4673. You think that Clayton Street wants a little more flushing?—I think it would be of service.

4674. (*Chairman.*) That from the Leazes is merely surface-water, is it?—It comes from Darn Crook, what they call Execution Dock.

4675. Is it a foul stream?—Yes.

4676. (*Mr. Simon.*) It comes past Green Court?—Yes.

4677. Which is a very stinking affair, is it not?—It is a filthy place, and it is frequently overflowed here, and that is why the town surveyor made this cut.

4678. In Grainger Street, where Scott the tailor and his wife died, did any other death occur afterwards?—I think not.

4679. (*Mr. Town Clerk.*) I have been told that his son came from Brandling Place to take care of the shop, and died also?—It must be a second son, then, for there is one living still.

4680. (*Chairman.*) You said, I think, that the accumulation, if any, which took place in your sewer, would take place here (*pointing to the plan*)?—Yes, I think so; there would be a stoppage. This is not of sufficient capacity, therefore it would dam the water back up here.

4681. Apart from the flooding, do you suppose that there was at that time any deposit in the sewer there?—I should think not.

4682. Is there any other point to which you would wish to draw our attention?—I have made an estimate of the cost that has been expended upon sewers and branch drains, and flagging, and macadamizing, and water-closets.

4683. I understand, you have never built a house which you have not drained as regards the surface; and you have built but few comparatively, which you have not drained, as regards fœcal matters?—Yes, I think so, as nearly as possible. There may be an omission; but what I have laid down there is substantially correct; there may be discrepancies in the matter, but it is substantially correct. I was just going to show you this estimate; it astonished me; I have laid out in water-closets 21,240*l.*, reckoning them at 20*l.* each.

4684. Does that include the cost of the drains?—No, without the drains.

4685. Would a water-closet cost 20*l.*?—Yes; they can fit them up now at 3*l.*; it shows the advantage of the constant supply from Whittle-dean.

4686. In those days, when you had to make a cistern, and tap, and so on, it cost you as much as 20*l.*?—Yes.

4687. Then, the fact of your having had an intermittent supply of water until the year 1848, rendered the construction of water-closets in houses until then very expensive; and so perhaps may have tended to diminish the number of water-closets, and properly-drained privies?—Decidedly, from the expense of them; because when the supply was only two or three days a week, we were under the necessity of having a cistern of a certain capacity.

4688. Will you put in that paper?—I will read it; 1,062 water-closets, 21,240*l.*; 302 privies at 4*l.* each, 1,208*l.*; 3,843 yards of main sewers at 2*l.* 10*s.* per yard, 9,607*l.* 10*s.*; 4,700 yards of branch sewers at 10*s.* per yard, 2,350*l.* The trapped sinks and grates in the houses. 960*l.* 8*s.*; I have flagged 19,197 yards in the streets at 7*s.* 6*d.* a yard.; it cost me 7,198*l.* 17*s.* 6*d.*; I have put crossings, 1,805 yards, 902*l.* 10*s.*; paved channels, 5,143 yards, costing me 1,548*l.* 18*s.*; then paved streets, 5,196 yards, 454*l.* 13*s.*; macadamized roads, (the principal streets in the town, Grey-street, and all those other streets are macadamized,) 19,622 yards at 2*s.* 6*d.* a yard, 2,452*l.* 15*s.*; 71 street-gates at 25*s.* each, 88*l.* 15*s.*, making in all 48,012*l.* 6*s.* 6*d.*

4689. (*Mr. Simon.*) In addition to the building of the houses?—In addition to the building of the houses; then in addition to that, which I think contributes very much to the health of the town, I have been at the expense of making all these wide streets without a sixpence of cost to the corporation. Grey Street 80 feet wide, other streets 65 feet wide, and the narrowest of them 50. I have not only had to give up that to the town, which I have had great pleasure in doing, but I have in some instances had to reduce the level of the ground from 4 to 15 feet and lead it away; and I have had in other places to fill up twice that depth.

4690. (*Chairman.*) To make an uniform level surface?—To make an uniform level surface; and I think it is only fit to state, now as the subject is before us, that I have not only formed the streets, but I have decorated the houses in the manner that you see; and I was not obliged to do that; the corporation merely bound me to make polished stone fronts; all the decoration that you see has been done because I pleased to do it.

4691. You had a taste for art?—It affords me more pleasure than if I had the money in the funds that it cost; and I should think the cost would not be less perhaps than 100,000*l.*

4692. What do you think has been the aggregate expense of all your building and sewering, and ornamental operations in the town?—That I could not say exactly.

4693. (*Mr. Simon.*) Could you tell us the total?—I could by looking; but I am not in possession of it at this moment.

4694. Was it a condition of your lease that you should do those drain works and other works here specified?—Of course to put adequate sewers and drains.

4695. That you were bound to by the corporation?—Yes, and to lay foot-ways and to macadamize and do to the streets such as you see there done.

4696. (*Chairman.*) Everything but the ornamental part?—They had no cost whatever; but they encouraged the matter, and they did good for the town.

4697. (*Mr. Town Clerk.*) They paid for the market?—They paid the difference between the old market and the new one; and that enabled me to do it. They allowed the removal of the market; otherwise the condition of that place would have been more filthy and degrading than almost any place in the town; it would have been as bad as Sandgate by this time, I have not the least doubt.

4698. (*Mr. Simon.*) Were you bound to build water-closets?—No.

4699. (*Chairman.*) What do you think of the comparative accommodation for the poorer classes in this town between 1831 and 1853. Were there a greater number of houses and tenements within their reach in 1853 than in 1831?—I should think there were; there have been several old places pulled down, and they have been deprived of those filthy places; but a great many have been erected in the western part of the town, and also in the eastern part.

4700. (*Mr. Simon.*) What is your opinion of the modern houses which have been erected here for the labouring classes?—I do not know much of them; I am not connected with that class of houses, and have been very little among them.

4701. (*Chairman.*) How much do you think the houses for the accommodation of the poorer classes have increased since 1831?—That I could not say, but they have considerably increased.

4702. Your operations have reduced them to a certain extent, and the railway operations have reduced them to a still further extent?—Very much indeed; and the corporation too.

4703. (*Mr. Simon.*) And with that the population may have doubled itself?—Yes.

4704. What will have become of the increase of the poor population?—A great many houses have been built for them.

4705. (*Mr. Town Clerk.*) You have observed Mr. Wallace's scavenging for the last twenty years I dare say; do you think he has gone back or improved in that time?—Decidedly improved.

4706. You think he is a better scavenger than he used to be?—Considerably; the streets are as clean as in most towns that I have seen.

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4707. (*Mr. Simon.*) Can you speak of the scavenging of the poorer parts of the town?—No, I do not know so much of the lower parts of the town; I am seldom near those parts of the town; but there is decidedly great improvement in the central part.

4708. (*Chairman.*) You confine your remarks pretty much to your own district?—Yes; I am seldom out of that beat.

4709. (*Mr. Simon.*) Have you seen enough either of the houses, or of the plans for the houses of the labouring classes, or do you know enough of them from conversation with persons engaged as builders of them, to be enabled to judge whether those that have been recently constructed are well provided with privy accommodation?—I should think them principally provided with privies.

4710. And with the middle class houses in this town how would it be?—I should think water-closets are more generally introduced than they used to be.

4711. It seemed probable from some information that was before us, partly derived from the water company, and partly from other sources, that we should not be very far wrong in taking 1,500 to be about the total number of water-closets in the place; should you think that very much below the mark?—I have no idea.

4712. (*Mr. Town Clerk.*) Some will be supplied with rain water cisterns?—There will be some.

4713. Of which the company would have no account?—No.

4714. (*Mr. Simon.*) Should you think that many water-closets would be supplied from rain-water cisterns?—I should think more formerly than now; because the company's water is so cheap now; it is merely a saving of 10*s.* a year; 2*s.* 6*d.* a quarter.

4715. (*Chairman.*) In saying 1,500 water-closets, we meant 1,500 houses having water-closet accommodation. We have in evidence from Mr. Main, that 1,166 are provided with water-closets, because they never charge for more than one, though more than one may be in the house. Then we calculate upon about 350 houses having other water supply in communication with privies; would you think that a fair and liberal computation?—I should think there would be more than that.

4716. (*Mr. Simon.*) More than 350 houses dependent on rain or spring water for the supply of water-closets?—It is possible. I would not like to give an opinion about it.

4717. (*Chairman.*) It is merely as matter of opinion; Mr. Main told us that he thought 1,500 would be the outside; suppose we say 1,600?—There would be fully that, I should say.

4718. Say 1,700?—I should not like to give an opinion about it. I have no reason to know. I am only acquainted with the parts I have been operating upon myself; I do not know much about the other parts of the town.

4719. (*Mr. Simon.*) I suppose we may take for granted that of the older houses there are not many that have water-closets?—A great many, I have no doubt, have been introduced lately.

4720. Like the first class of your houses?—Yes.

4721. (*Chairman.*) But they would be supplied from the Whittle Dean?—Some would, and others either from the pumps that they have, or from rain water.

4722. (*Mr. Simon.*) Would a builder, now, in fitting up a water-closet be likely to recommend his tenant to be dependent upon rain water?—No; I should think he would recommend the Whittle Dean water.

4723. Can you suggest to us any way in which we can arrive at a tolerably correct knowledge of the number of houses that would have their water-closets supplied with rain water?—There would be no other way than going from door to door, I imagine, and counting them.

4724. In the middle class houses, which have not been built by yourself, do you believe at the present moment that the arrangement of privy or water-closet is the more common one?—I should think privy yet.

4725. And in those houses that have a double arrangement, an arrangement for the heads of the house, and an arrangement for the servants, would it be a common arrangement that the servants' place should be an open privy, and the other place a water-closet?—A great many make use of the same soil pipe by having it immediately below—that which is used by the master of the house is up above, and down on the kitchen floor there is a second water-closet introduced in many houses.

4726. Without a trap?—Without a trap, but supplied from the same cistern, immediately below.

4727. Is not that a very defective arrangement?—I think it is very good, because it is a great saving of expense. It is properly trapped, and the same soil pipe answers, and the same service pipe answers.

4728. So that they are flushed with the discharge of the up-stairs closets?—No; they have access to the cistern, but the cistern answers for both purposes; there are three, and sometimes four. But there are houses that have water-closets, and privies for the servants in the yards.

4729. (*Chairman.*) As in Leazes Terrace?—As in Leazes Terrace.

4730. Or Blackett Street?—Yes, and many other places.

4731. Is there any other point to which you would like to draw our attention?—I do not know that there is any other point.

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4732. (*Chairman.*) You are an architect, I believe?—I am.

4733. How long have you practised as such?—Above forty years.

4734. In the course of that time I suppose you have become pretty well acquainted with the stratification of this neighbourhood?—I have had occasion to build in various parts of the town, which has given me a very good knowledge of it.

4735. Can you give us a general notion of what the stratification is?—The surface is composed of deposit, resting on what I call the primitive clay. That deposit varies in thickness from two feet generally to six feet; frequently more: in some places ten. The cause of that great variety is owing to the primitive clay being washed out in large bowls, what we call pot-holes, and those pot-holes have been filled up in the higher part of the town with sand, and occasionally alluvial matter. At the lower part of the town they are filled with sand and peat.

4736. Are those pot-holes filled up generally to about the level of the general surface of that primitive clay?—Yes.

4737. So as to become flush with the surface of the clay?—Yes; and on it rests the deposit, what we call clay here. It is not very good clay; it is in some parts stronger than in others. This section will give you some idea of it (*handing in the same*). There are deposits of sand among it, so that it is not altogether solid clay.

4738. The upper surface, partly clay and partly loam, is traversed by beds of sand and gravel?—Yes. This is merely an eye sketch, but I found the stratification on building the new railway station, very much like what is represented here; and after we levelled down, we put concrete and built on the bowls. Many of those pot-holes are thirty feet deep, and we did not go down to the bottom of them.

4739. What term would you employ to designate generally the upper formation?—Yellow or brick clay, that is, sand and clay mixed.

4740. Would that upper formation be a dry soil?—No, it is wet. The moisture, which falls on the surface, percolates through it, and many of those bowls are full of water; others are not; therefore we have no difficulty in getting water generally in the town; but there are so many privies and ash-pits, that the water is not so good as it ought to be on that account.

4741. You mean to say that the water in these pot-holes is contaminated by the percolation of rain water charged with excrements?—Charged with the excrements from the privies, ash-pits, dung-pits, and other contaminating matters.

4742. Is the soil generally spongy and damp?—You may consider Newcastle as built upon a sponge. It is not altogether exactly as I have described. In building the new prison (this is the section from New Bridge Street down to the gaol), at this part there were no pot-holes.

4743. The gaol stands upon what you call the primitive clay, without any deposit or other formation between?—Yes. Taking a transverse section again from Erick Burn, which runs down past the gaol, across Pandon Dean, and beyond Argyle Street, there is a deposit there.

4744. Does the stratification to which you have alluded prevail over the generality of Newcastle?—Generally it does.

4745. Are there many exceptions like that of the gaol, where the primitive or blue clay comes to the surface?—Very few. I only know that one.

4746. (*Mr. Simon.*) What is the character of the ground about the market?—That was a very deep ravine originally, filled up with the deposit of the town to a very great depth; forty feet, or somewhere thereabouts, Mr. Grainger had to go down for a foundation. I made the design for the market, and that enabled me to know. We built the market on the surface of this deposit.

4747. (*Chairman.*) When you say "the deposit," you mean ashes, and all that sort of thing?—Yes.

4748. (*Mr. Simon.*) Is that the case also with Clayton Street?—No.

4749. Is it the case with Grainger Street?—Yes, a good deal of it. The ravine runs in that direction. Some of Mr. Grainger's foundations are not less than twenty or thirty feet there.

4750. Are the foundations very dry?—No, the foundations themselves are not dry. Mr. Grainger filled up part of that valley with the excavations of the foundations, but previously to that it had been filled up with the deposit of the town.

4751. (*Chairman.*) That deposit would be dry, however?—Perfectly dry. In Dean Street it was a deep ravine; it has been filled up in the same manner.

4752. With refuse and ashes?—Yes.

4753. (*Mr. Simon.*) What should you think of the drainage of Clayton Street in the basements?—Clayton Street is built on the yellow or brick clay generally.

4754. Are there any pot-holes there?—All over it. That is the reason why there is such a great variety in the depth of the yellow clay there.

4755. Just look at this plan, which has been produced by Mr. Grainger; where did this ravine run?—(*The witness pointed out the same.*)

4756. Beginning from Newgate Street?—Yes; and all this was filled up with deposit, ashes, and those things from the town.

4757. Along Clayton Street what is it?—That is all clay.

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4758. (*Chairman.*) What is it at Eldon Square?—That is all yellow clay, too. I made the plans for Eldon Square before it was built.

4759. What is Carliol Street on?—On the yellow clay. The whole of the town is of that formation with the exception of about the gaol and the Sand hill, and the Quay side.

4760. And Sandgate?—Yes, building a house just about there (*showing the same*), I found the old Quay Wall, and all this part of the Quay side was deposit from the ships, and Sandgate the same—all sand and gravel.

4761. That extends some little way up the hill?—It extends to the foot of the hill.

4762. What may be the height of that?—The foot of the Side is eight feet above high water.

4763. The depth of the strong loam varies from two to six feet?—I have known it more than ten, but generally not more than six. It depends entirely upon the formation of those pot-holes.

4764. Is the upper or yellow clay considerably retentive of water?—Yes, pretty well. Some parts are very retentive, and other parts less so.

4765. Speaking generally of Newcastle, do you think that under-ground dwellings, cellars, and the foundations of houses would be inclined to be decidedly damp?—Yes, generally, I think they would, unless there was proper precaution taken.

4766. Where the walls were in contact with the clay or loam around, you think that they would be decidedly damp?—Decidedly. The common practice now in building is to put air vents round the buildings; at least, I have done so for these twenty years, so as not to allow the soil to touch the walls or foundations at all.

4767. Where have you built any houses yourself in this town?—The gaol, the station, St. Thomas's Church, St. Peter's Church, the markets, &c.

4768. Descending to residences?—My practice is a great deal in the country. I have built a great many gentlemen's houses in the counties of Northumberland and Durham, in the counties of Lincolnshire and Cheshire too, and even at Windsor.

4769. Are you cognizant of the nature of the modern structures in this town?—Small villas I have had very little to do with. It has generally been with buildings on a large scale.

4770. With regard to the contamination of the water in these pot-holes, what is your opinion?—The privies in this town generally empty themselves into ash-pits, and the ash-pits are generally about two feet below the surface of the court-yards, and in wet weather, of course, that stuff must percolate through into those holes.

4771. Do those holes get full of water?—Not full, but almost all the water that falls must get there. I do not think that privies are a very desirable thing to have in the town, if they can be avoided.

4772. Supposing you had a complete system of sewerage in Newcastle, do you think you could get pure drinking water out of those pot-holes?—I am afraid not, after Dr. Richardson's statement.

4773. (*Mr. Simon.*) You think it would be very hard?—The water is very hard, no doubt.

4774. (*Chairman.*) Look at this statement and see if it be a correct statement of the levels in this town?—Yes, it is.

4775. (*Mr. Simon.*) On what do you suppose that the foundations of the houses rest about Clayton Street?—Upon the yellow clay, and where there have been under-ground kitchens made, sometimes they have cut through the yellow clay, and got to the blue clay, or into the other deposit in the pot-holes, such as sand and other alluvial matter.

4776. They would be liable then to a good deal of dampness?—No doubt of it; but in Mr. Grainger's buildings, fronting the streets, you have generally areas, which prevent that in a great measure. On the other side of the house, I do not know that Mr. Grainger has, in every instance, air vents, but there is always a space left between the trench and the wall, for dry stones to be put in, and that answers the purpose pretty well.

4777. (*Chairman.*) I see that the lowest street which you appear to have in Newcastle is the Close?—Yes; that is generally about five feet above the level of high water.

4778. When you say high water, do you mean ordinary high water?—No; spring tides high water.

4779. The foot of the Side is about eight feet above high water?—Yes.

4780. And what is about the level of Sandgate?—Sandgate varies; the west end of Sandgate is about eight or ten feet above high water.

4781. And how low is the lowest or east end?—The east end will not be quite so much. It will be about seven feet, I should say. I have not levelled that, so I cannot say positively. I am speaking of the street of Sandgate.

4782. It will be higher, then, in the New Road, Sandgate?—Yes; there is an immense hill there.

4783. What is the level of the Quay above high water spring tides?—About six feet; scarcely so much; from five to six feet. The east end of it, which runs into Sandgate is higher.

4784. It is about the level of the Close then?—Yes, a little higher, perhaps.

4785. Do you know anything of the sewers?—Not a great deal; the sewers that I have used in Newcastle have been of the egg form; they were put in about six years ago at the station in Nevile Street.

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4786. Do you know anything about the sewer in Collingwood Street?—Yes, I have seen it; it is an old sewer, a flat-bottomed sewer, and that sewer which I speak of in Neville Street runs into it; that is the reason why my attention was directed to it.

4787. Have you been into the sewer in Collingwood Street?—Yes.

4788. How did you find it?—There was a little deposit, not much. I had to run a drain into it from Neville Hall, as we call it, near the Literary Society; and of course I went down to look at the sewer, and found three or four inches of deposit in it. A heavy rain would of course cleanse all that.

4789. I think you said that you had not had much to do with building small houses here?—No.

4790. Nor do you probably know much about them?—I do not at all.

4791. Is there any other point upon which you wish us to take your evidence?—No.

4792. (*Mr. Town Clerk.*) I suppose you ascertained the levels of those streets by measuring them?—Yes, I had them all levelled; I did not level them all myself, but I had them levelled at the time when the new railway was projected. We took the levels on that account. I may state that since the formation of the viaduct through Newcastle, I myself paid 800 families compensation in respect of the houses that we pulled down, and those families must have got houses at the western part of the town. So far the town is much better.

4793. You dispossessed 800 families?—Yes.

4794. They were not located in the choicest part of the town?—No; in Castle Garth, and on the line of the viaduct through the town.

4795. (*Chairman.*) How many houses would those 800 families have occupied?—I do not know; I cannot say that, exactly.

Mr. Thomas Bryson, sworn.

Mr. T. Bryson.
27th Jan. 1854.

4796. (*Mr. Simon.*) Last night, by the order of the town surveyor, you examined the state of the sewers at that part of Clayton Street where it is crossed by Fenkle Street, did you not?—Yes.

4797. In what condition did you find the sewer in that locality?—The main sewer is filled up to some considerable extent where it crosses Fenkle Street.

4798. With what was it filled up?—Principally with liquid animal and vegetable decomposing matter.

4799. How deep was that deposit at its deepest part?—One foot eight inches, perhaps.

4800. (*Chairman.*) For how far did that silting up extend?—It diminishes back as far as about the Clayton Arms.

4801. (*Mr. Simon.*) Whereabouts is the Clayton Arms?—Towards Market Street, here. (*The witness pointed out the same.*)

4802. Is it 100 yards from the crossing of Fenkle Street up to the Clayton Arms?—Yes. Perhaps 90.

4803. You examined also the condition of the sewer which leads from Nelson Street into Grainger Street and turns round the corner of Grainger Street into Market Street?—Yes.

4804. In what condition did you find that?—There is a strong running stream, a strong current of sewage water, and some of the bottom of the sewer is turned up and obstructing the passage of the water.

4805. Would that allow the contents of the sewer to soak into the soil?—It possibly might.

4806. Were some of the contents of the sewer stopped by this leakage of the bottom?—It certainly was dammed up to the altitude of the position of the bottom.

4807. (*Chairman.*) How high was that?—I did not guage the head. In all probability it might be fifteen or eighteen inches.

4808. (*Mr. Simon.*) Was it the same sort of deposit as in the other case?—Not at all it was just sewage water with very little heavy ballast, and what there was was a gravel ballast, not at all the same material as was found in the other.

4809. Not deposit?—No, but a pond with heavy gravel at the bottom.

4810. What was the exact position in which you found it?—From the end of Nelson Street, so far along Grainger Street to where it turns down into Market Street.

Mr. Thomas Jenkins, sworn.

Mr. T. Jenkins.
28th Jan. 1854.

4811. (*Mr. Simon.*) You were inspector of nuisances in this town during the three and three-quarter years from December 1848 to the middle of 1852?—I was not all that time inspector. There was an interval between the times of my being so, and another officer was appointed. I went away, and left the town; that is why the books are wanting.

4812. During the times in which you acted, were you inspector for the whole town, or for part of it only?—At first I was inspector for the northern part, including Ouse Burn, Ballast Hills, and Lime Street, and all down the east of the Ouse.

4813. (*Chairman.*) Did it include All Saints?—Yes, the northern district.

Mr. T. Jenkins.

28th Jan. 1854.

4814. (*Mr. Simon.*) Pandon and Sandgate?—No.

4815. All Saints east?—Yes, it included the northern district of the parish, and St. Andrew's and Byker; Byker Town, and Byker Hill, and Quality Row; St. Peter's Quay, and so on.

4816. (*Chairman.*) All the north and east?—Yes.

4817. But St. Nicholas, and St. John, and All Saints generally, were out of your jurisdiction?—Yes, they were then.

4818. (*Mr. Simon.*) Did you afterwards act for any larger district?—Yes, I acted for the whole town after that.

4819. So that, during that period, you became familiar with the habitations of the poorer classes generally?—Yes.

4820. We have a great many of your reports before us, and I believe some more are to come?—Yes.

4821. You are now relieving officer?—Yes, for All Saints.

4822. When were you appointed to that office?—I was appointed in 1852, two years ago.

4823. In discharge of the duties of that office also, have you had occasion to visit the poorer inhabitants generally?—Yes.

4824. Do you recollect the condition of the dwellings of the poor when you were inspector of nuisances?—Yes.

4825. Did you, while you were acting as relieving officer last summer, find any alteration of the condition of those rooms from what they had been in some years previously, when you were acting as inspector of nuisances?—Not in the condition of the rooms; but in Sandgate I considered that there had been an improvement in the lanes and the streets.

4826. In what respect?—In flagging. There was no flagging in Sandgate. There was not a foot-path there formerly.

4827. (*Mr. Bateman.*) How long since?—Three or four years ago. Since that flagging has been put down in Sandgate. Formerly there was no water in the lanes, and there has been water put in since that.

4828. (*Mr. Simon.*) Do you know many parts of the town in which there is a great absence of privies, and in which the poor suffer from the want of that accommodation?—I do, especially in the lower parts of the town.

4829. What do you find is usual in consequence of that?—The consequence is, that the inhabitants deposit the filth in the lanes, and throw it out of the windows sometimes.

4830. Do they keep a great deal of that filth in their rooms?—For a length of time; sometimes for three or four days together. They have a large pail, or something of that kind, to keep it in.

4831. Do you find that the rooms are often rendered offensive in that way?—Decidedly so.

4832. Did you find that the rooms of the poorer classes in the months of August and September last were in a filthy state before the whitewashing began?—Yes.

4833. Before the cholera broke out?—Yes.

4834. Take the whole month of August?—They were extremely filthy; a good part of the houses in Stockbridge, and Sandgate, and Mount Pleasant, and so on.

4835. And in other parts of the town, about the Close and Castle Garth?—I had nothing to do with that locality in August and September last year.

4836. Can you speak to Pandon?—Yes.

4837. Was it filthy?—Yes.

4838. Can you speak to the neighbourhood of Gibson Street?—Yes.

4839. Was it in a filthy state?—There the drainage is very insufficient, and the privies are in a bad state.

4840. About the Ouse Burn, were they filthy?—Yes.

4841. Quality Row, and places there?—Yes, Quality Row is extremely in want of drainage.

4842. At present, I am speaking about the interiors, the rooms?—There are some very clean, and others, on the contrary, are in a filthy state. That locality is almost all populated by English mechanics, and other parties, who do keep the houses clean. On the other hand, where there is a population principally of Irish, immediately the place is filthy. They generally drive the English out when they get into a lane, and take possession of it.

4843. Speaking of the condition of the habitations of the poor generally, should you say that, about that time, they were very much in want of cleansing and limewashing?—I should say that they were; I think so.

4844. And that the poorer classes were suffering from the absence of privy accommodation?—Yes.

4845. Had they ash-pits sufficiently?—There was a great difficulty at one time in getting the ash-pits emptied.

4846. First of all, were there districts in which they suffered from the want of ash-pits?—Yes.

4847. To a great extent?—Yes.

4848. What happened from that want of ash-pits?—They generally took the ashes to the street, and the corporation cart used to go round about eight or nine o'clock in the morning, and pass down the street, and carry the refuse away. But sometimes the corporation cart got away before the people were up, and then it was thrown down in the lanes.

4849. If you take such a neighbourhood as that of Sandgate, where the entries are long, would the people generally take the trouble to carry their ashes down to the end of the passage?—Yes, they generally do.

4850. In the neighbourhood about Quality Row, used the cart to go round regularly?—I do not think so; I never saw it there.

4851. In the places where ash-pits and privies existed in the houses of the poor people, say about Lime Street, about St. Lawrence, about Pandon, and elsewhere where they had got such things, did you find that the privies and ash-pits were regularly emptied?—No; many times they were overflowing.

4852. Do you know whether there was any regulation for emptying privies and ash-pits there?—None that I am aware of.

4853. Were the people left to empty them when they chose to empty them?—Yes.

4854. Do you find that, in those respects, it is very much the same as when you used to be the inspector of nuisances?—Yes, with regard to the east part of the town it is.

4855. When you were an inspector of nuisances, used you to represent these things to the board of guardians?—I did.

4856. And in those cases the board of guardians proceeded to remedy them?—Yes.

4857. You spoke of the drainage being bad in parts of your district; are there many places where the drains are complained of?—There is a good deal of the drainage not well constructed.

4858. Are there many parts of your district where there are no drains under the ground, but only gutters over the ground?—Yes.

4859. In the neighbourhood of Quality Row and that piece of ground just on the other side of the Ouse Burn, are there gutters or drains?—Gutters.

4860. Is there much filth in them?—They are very offensive indeed, and much complained of.

4861. On the other side of the way, about Lime Street?—There are gutters there too.

4862. Do you know whether there are drains also underground?—I cannot speak to that.

4863. Do these drains that are above the ground contain all sorts of filth?—In Lime Street they are frequently swept; in Quality Row they never are cleansed. Indeed, I do not remember but once or twice the parties doing it.

4864. In these neighbourhoods, where you find all sorts of things in drains above the ground, and on the surface of the pavement, do you suppose that the poor people throw them there wantonly, or for want of proper accommodation?—I consider it is for want of proper accommodation in good part; others do it wilfully.

4865. Are there any nuisances in your district arising from slaughter-houses or pigs, or from any offensive trades, triperies or tanneries, or anything of the sort?—There are some; there is a tripe place in Sandgate, which I consider a very serious nuisance.

4866. When you were an inspector of nuisances, was that ever complained of as a nuisance?—Yes; and we caused the place to be all cleaned out.

4867. Has it continued to be a nuisance to the present time?—It is still there, and it is surrounded by a dense population of Irish inhabitants, amongst whom there is a great deal of sickness. Indeed, now there is a corpse lying in the same locality, the party having died suddenly yesterday.

4868. Are you aware of any other establishment of the same kind?—There are other establishments in Sandgate, but they are conducted in a more cleanly manner than the others are.

4869. Are there any public privies in your district?—Yes.

4870. Are you acquainted with the condition of these privies?—I am.

4871. Are they cleanly?—Yes, I consider that they are cleanly, especially that one at the Stockbridge. It has been remedied lately, and put into a better state; it used to be in a very filthy state. Sometime s there was not sufficient current to carry away the matter which was put there; and it used to accumulate for two or three cart-loads together, and was very much complained of.

4872. (*Chairman.*) Was it always lighted?—Yes, at nights.

4873. (*Mr. Simon.*) Do you find any complaints of these public privies, that they are nuisances in any respect?—Not at present. Latterly I have observed that the public privies have been very well attended to; I believe that generally the corporation men clean them out and cleanse them.

4874. Are you aware that during the prevalence of the cholera, last year, certain houses were shut up as unfit for human habitation?—Yes.

4875. Do you know whether any of them have been re-opened, and are now inhabited again?—Yes.

4876. Was that the case with Mitchison's Buildings, in the New Road?—I believe it was.

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4877. Is Mitchison's Buildings now in a better condition than it was before?—Not a bit.

4878. Do you believe it now to be unfit for human habitation?—I do, decidedly.

4879. Do you know of any other houses that have been opened which were closed?—Not that I am aware of. There are some, I believe, which have been opened lately; indeed, I know some where the door has been broken open and the Irish have entered again, whether the landlord will or not. One in Nag's Head Alley, I believe, has been opened.

4880. Does the landlord get no rent from them?—I believe they have been put out since that. I believe the landlord has looked after them, and put them out.

4881. (*Chairman.*) What is the state of the walls in Mitchison's Buildings?—Very filthy indeed, damp. There have been four or five cases of fever where the parties have died there, since the cholera, out of those houses alone.

4882. What makes the walls damp?—It is a long way below the level of the street and the level of the yard. The place is all surrounded with filth; the floor of the houses is quite damp from being so far below the level of the surface; I should say it is two feet or thereabouts below the level of the street.

4883. (*Mr. Bateman.*) You have fever there, almost always, have you not?—Yes; there is almost always fever in that locality.

4884. (*Chairman.*) It was shut up during the cholera time?—Yes.

4885. (*Mr. Simon.*) Is Dublin Terrace within your district?—Yes.

4886. Was it shut up?—I believe there were some of the rooms shut up.

4887. Is it re-opened now?—It is, part of it.

4888. Do you consider that to be a wholesome place?—Decidedly not; I consider it one of the worst places in the town that I am aware of; a place where we always have sickness.

4889. When you acted as inspector of nuisances for the whole town, in the year 1852, did you find many bad localities in the other parts of it; were the courts about Newgate Street bad?—Some were; some houses in Taylor's Court were sometimes in a very filthy state.

4890. Pudding Chare?—Pudding Chare was sometimes filthy; and Rosemary Lane.

4891. Do you know of any dwellings of the poorer classes within the limits of the borough, which were clean, and which had proper privy accommodation, and water supply and drainage?—What period are you speaking of?

4892. Either then or now?—I do think that there is a want of both; a great want of privy accommodation. I cannot speak generally to the state of the town now, as I am confined to one district. I wish to speak to that district, and that alone.

4893. Do you think that your district was better in August 1853, than in August 1849?—Not with regard to the dwelling-rooms.

4894. (*Chairman.*) In paving and water supply you have said it was?—Yes.

4895. Are there any parts still unpaved in Pandon, and about there?—Pandon has been re-paved only lately.

4896. (*Mr. Simon.*) Did you find that the paving about the Ouse Burn was better in August, 1853, than in August, 1849?—In what part?

4897. About Lime Street, about Ouse Street, about the other side of the river, about Quality Row and the neighbourhood?—I do not think there is any paving in Quality Row; but there is generally a deposit of ashes deposited there by the inhabitants for want of accommodation.

4898. Is Shield Field in your district?—Yes.

4899. In what condition was it last August?—Since last August there has been a great deal done in paving and flagging, although there are several streets there in a very filthy state now, from the want of paving and other accommodation, especially the new streets which are now being built, which have got tenanted.

4900. Which streets are they?—There is Canada Street, it is not paved.

4901. And there are lanes in a filthy state at the present time for want of pavement?—Yes. There are some cases of fever there. I had some the other day. I could scarcely get across.

4902. (*Chairman.*) If it ever has been paved, it has become unpaved again?—I do not think it ever has been paved. I know the locality.

(*Mr. Ingledew.*) Canada Street is very properly drained. I was concerned with every house there; there is a main drain, and a very efficient one.

4903. (*Mr. Simon.*) As to paving how is it?—The paving goes on as the houses are built on both sides.

4904. (*Chairman to Mr. Jenkins.*) What streets were you alluding to as unpaved; you seem to have made a mistake as regards Canada Street?—I should have said Barker Street, not Canada Street; and there is Franklin Street, and another street which is not yet named.

4905. However there are some streets there which are unpaved?—Yes.

4906. (*To Mr. Ingledew.*) We understand there are some streets in that district still unpaved?—There is one public passage in another part of the town which is not properly paved.

4907. (*Mr. Simon to Mr. Jenkins.*) Is Shield Field a good place now?—Yes, generally speaking; and the streets and places there are kept clean, to what they used to be. It is flagged there now.

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4908. In the neighbourhood, which you just now spoke of, on the north side of Shield Field, do you know whether the people are provided with privies?—There are privies, but they are in a dilapidated state. There are private privies, but they seem to be, I think, too small. Behind Franklin Street there is a large accumulation of filth, where the inhabitants lay down ashes, and such like.

4909. (*Chairman.*) What was the condition of the road leading at the bottom of Wesley Street, along by the mill, in August 1853?—I cannot speak to that.

Mr. George Grey, sworn.

Mr. G. Grey.

4910. (*Chairman.*) You are assistant overseer for one of the parishes of this town?—Of All Saints.

4911. Then I suppose you are pretty well acquainted with what the state of that parish was in August 1853?—Yes, I have known it for a great many years.

4912. What was your impression of the state of things, say a little before the outbreak of cholera, as to that parish generally; did you find it clean and well ventilated, and in a wholesome condition or otherwise?—I think it was better at that time than it had been for some years before.

4913. You think that it was better in 1853 than in 1848 and 1849?—I think it was; I think greater attention has been paid to scavenging, and paving, and draining, and all these things, since the fever of 1847.

4914. In other respects had the ventilation of the houses or the overcrowding or privy accommodation altered?—There was very little alteration as to that, I dare say.

4915. When you speak of draining I suppose you speak of putting in sewers?—Yes; and a great number of surface drains too were put in.

4916. Where was the additional paving that you allude to; was it in Sandgate chiefly, or in other places?—In a number of places. In Shield Field district more particularly, which has been alluded to, there was a great deal done in the shape of paving before 1853.

4917. Admitting it to have been improved as compared with what it was previously, what was the actual state of Pandon and Sandgate, as regards what human habitations ought to be; do you think it was wholesome?—Not so good as some places, though I by no means think that Sandgate is so bad a place as it has been represented to you to be by some people.

4918. Take Pandon, or Castlegarth, then?—I think there are many courts in these districts much worse than Sandgate; the lanes in Sandgate are all open, and every tide sends a sweep of fresh air up them.

4919. Were there any courts or entries about Pandon which you would think in a very bad condition?—There were some bad ones about Pandon; they have no chance of being ventilated like Sandgate, the wind has no chance to sweep in a full range.

4920. In Sandgate are the entries wide?—They are narrow entries.

4921. In Pandon are they wide?—They are narrow in Pandon too.

4922. In both places do you find the houses built back to back?—In both places they are so built.

4923. With one of these narrow entries in front?—Yes.

4924. Were any of them in a state that you would call unwholesome and filthy?—Yes, some of them I think were.

4925. Was that the case in all these three districts, Sandgate, Pandon, and Castle Garth, or only in some one or more of them?—I should say that there were some places in all of them that probably deserved that character of not being wholesome.

4926. Have you any other statement which you wish to make?—I have nothing to say further.

4927. (*Mr. Town Clerk.*) Was the mortality equally great in Sandgate as in other parts?—No, it was not so great in Sandgate as in some other parts, nothing like it; it was nothing like so great as in St. John's parish, little more than half.

4928. (*Mr. Mason.*) Are you cognizant of any complaints as to the quality of the water during the period of the epidemic?—Yes, I heard many complaints of it.

4929. (*Chairman.*) What was the nature of the complaints?—That the water was very bad.

4930. From whom did you hear it?—From various persons all about.

4931. Did they say anything more than that it was bad?—I have heard some persons say that it had a very bad smell, though I never felt it; we used the water in our house all the time, and I never noticed that it had a bad smell.

4932. (*Mr. Town Clerk.*) You speak of some of the houses in your district being unwholesome and filthy, what class of inhabitants are there in those houses?—Most of them are occupied by Irish.

4933. If you could clean their houses for them one day, in what state would they be the next?—I cannot speak as to that.

4934. You can give an opinion?—I never saw their houses clean.

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4935. From your observation of their habits do you think they would keep their houses clean if they were made so?—I have reason to doubt very much that they would from what I have seen of their habits. I remember a number of their houses being lime-washed at the time of the fever in 1847, and I had occasion to be in them not very long afterwards, and I did not see that there was much improvement. Some of the white remained, but the dirt abounded.

4936. (*Mr. Simon.*) Have you seen the same thing done since?—I do not recollect having seen it since.

4937. Till the time of the cholera?—I have not had much to do with it since that time. In 1847 I had to employ whitewashers.

4938. (*Chairman.*) With reference to these people, have they sufficient privy and ash-pit accommodation?—No; they have not.

4939. Supposing you were not only to clean the houses of these people for them, but also to provide for them sufficient privy and ash-pit accommodation, so that they should not be obliged to keep kits in their rooms, and to throw their ashes and refuse about, do you think then that their houses would soon become dirty again?—I think they would be better; but I have frequently, when I have been amongst them, had reason to complain and find fault with them, that they have had a good deal standing about that might have been taken away by the carts that went round.

4940. (*Mr. Simon.*) But do you think that the cart coming round gives them all the opportunity that is to be desired for getting rid of the filth?—I thought that they ought to have greater facilities; and I mentioned it to the mayor last year, and the cart since that has gone round twice in the day; morning and evening, I believe it goes round now.

4941. (*Chairman.*) It would be better if they had no occasion for the cart at all, I suppose, but if they had privies and ash-pits of their own?—It would be better, though I have seen instances where there are privies attached to tenemented property, where they have been really in as bad a state as others that had none.

4942. Were these privies lighted?—No; they were private privies. But there were, perhaps, not more than six tenants that had the right to use them, and still they were in a filthy state.

4943. (*Mr. Simon.*) Does the cart go round in the morning for dust and at night for night soil?—I dare say they take all. Perhaps they do not take dust at night, but I know in the morning they take the other as well as dust; they take their kits in the morning. I do not know at night what they take, but I see the cart going, and hear the bell ringing in different districts. They ring the bell at the foot of the lanes.

Mr. R. Currie.

23d Jan. 1854.

MR. RALPH CURRIE, sworn.

4944. (*Chairman.*) You are foreman, I believe, at Messrs. Stephensons' works, in South Street?—Yes, I am one of the foremen. Here is a written statement which I have drawn up, as to what I can speak to.

4945. In 1847 a Working Men's Sanitary Association was formed in Newcastle, was there not?—Yes.

4946. Of which you were a member?—Yes.

4947. I am putting this statement to you in the form of questions. In conjunction with other members of that association you visited the different parishes of this town to report upon their sanitary condition?—Yes.

4948. Did you visit All Saints' parish more especially, including Sandgate and Pandon?—Yes.

4949. Did you find them in a very filthy state, and suffering from an almost total want of ash-pits and privies?—Yes.

4950. Did you find that the corporation carts took the soil away occasionally?—Yes.

4951. But at the time of your visit the place was almost unbearable?—Yes.

4952. Was typhus fever very prevalent at that time?—Very much so.

4953. You found whole families struck down with it?—Yes.

4954. And the houses, in many instances, from damp and want of conveniences, unfit for human habitation?—It was so.

4955. Did you derive the impression that Sandgate more especially was seldom clear of fever, and that it was a hot-bed of disease?—Yes.

4956. Was there, within your knowledge, a meeting held in the Guildhall, where all these things were pointed out?—Yes.

4957. By whom?—By me.

4958. (*Mr. Simon.*) To whom?—To the audience. It was a public meeting.

4959. (*Chairman.*) Who were present; do you know?—Dr. White was in the chair. I cannot say that any of the authorities of the town were present. It was not a very large meeting.

4960. Do you know who convened the meeting?—I really do not know. I came to that meeting with no intention of speaking; but I was requested to speak; and, of course, having visited Sandgate a while previous, I made that statement.

4961. (*To Mr. Town Clerk.*) Could a meeting be held in the Guildhall without the knowledge or sanction of the authorities?—No; they would have to apply to the mayor for the time being.

4962. (*To Mr. Currie.*) You remember the then state of these localities?—Yes.

4963. Have you recently visited them, so as to have a knowledge of their state, say in August 1853, a month previous to the late outbreak?—I have not since made such an inspection as I made at that time; but I have gone down Sandgate and given a look into an alley or two, and found them just as bad as they were at that time.

4964. Have you any opinion as to what may have been done to improve those localities since the year 1847 or 1848, when you made your principal inspection?—I am afraid there is no improvement.

4965. No material improvement?—No, I should say not.

4966. You are aware that something has been done occasionally?—I believe there has been some whitewashing done occasionally, at the outbreak of an epidemic; but as to erecting ashpits, privies, or water-closets, I should say nothing has been done.

4967. And you regarded the previous condition of those places as exhibiting an almost total destitution of those conveniences?—It was very bad. It happened to be on a Sunday when this visit was made, for us not to lose time, being working men; the corporation carts do not take the soil away on the Sunday; and it was standing about the doors in all sorts of utensils, broken jugs and baskets. It was really in a very filthy state, and in some of the passages the excrement was lying so that you could not walk there, and that on a Sunday.

4968. Did you find any impression at that time among the inhabitants of those localities on that point?—They were complaining very much; there was a general complaint of a want of convenience.

4969. They were not, so to say, accustomed to that deprivation, but still felt it as a grievance?—The most of them were Irish; and I have visited Ireland, but really in the liberties of Dublin it is better than in Sandgate. I think in the liberties of Dublin I never saw anything like Sandgate; and though Irish, they complained, although the Irish are not so apt to complain.

4970. Were you also one of a deputation that waited upon the mayor and common council in 1848, to urge upon them the necessity of sewerage and drainage, and of the general improvement of the town, especially as labour was then cheap, mechanics of all grades being out of employment?—Yes, I was.

4971. Was anything done in consequence of that?—I think not, except a little improvement upon the race-course; nothing in the town that I am aware of.

4972. (*Mr. Town Clerk.*) No drainage or sewerage since 1848?—I believe they are putting in a drain now in the street in which I live; it has been in existence about fourteen years, and they are now putting it in.

4973. (*Mr. Simon.*) In what street do you live?—In Elswick East Terrace.

4974. (*Mr. Town Clerk.*) That is outside the ancient boundary?—It is outside the old boundary. When I say nothing has been, I mean that nothing has been done systematically; there has been some patchwork, I am aware.

4975. (*Chairman.*) Whatever may have been done, no material improvement has, in your judgment, resulted from what has been done?—I think not.

4976. Do you see, or would you be likely at this time to see, the same utensils about on a Sunday morning full of all forms of excrement?—I do not know what I might see now.

4977. (*Mr. Bateman.*) How would it have been in August 1853?—I cannot say how it would have been in August 1853; but my impression is that it was as bad as ever it had been.

4978. (*Mr. Town Clerk.*) But you did not see it, and therefore very properly decline to say?—Of course.

4979. (*Chairman.*) Do you in your association with the other men of Messrs. Stephensons' works, hear opinions expressed by them occasionally as to the state of those localities?—It is a well known fact, that when you mention Sandgate, it is considered a hot-bed of filth and disease.

4980. Even among working men?—Amongst working men it is clearly understood.

4981. Supposing any material improvement had taken place in the localities where these men of Messrs. Stephenson reside, do you think you would have heard of it?—I think so. I think I was in a position to have heard of it.

4982. Have you ever heard from any of these working men at any time since 1848, anything which would induce you to believe that those localities had been materially improved?—No.

4983. (*Mr. Town Clerk.*) Messrs. Stephensons' workmen live chiefly in the townships of Elswick and Westgate, do not they?—A great many of the boiler-builders live down about Sandgate; it is a locality that they have generally belonged to.

4984. I should have thought it would have been too unpleasant for them to live in according to your description?—It is a locality that a great many of them have been brought up in, on account of the work being down by the water, and so on. If they were shifting and paid off, very likely their work would lie down by the water next week; therefore I think they judge rightly when they stop there.

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4985. Their prejudices in favour of the residence of their forefathers induce them to prefer Sandgate?—That is very likely.

4986. (*Chairman.*) Do you, from your habitual association with these men of Messrs. Stephensons,' feel confident that you are aware of their feelings and impressions on the subject generally?—I will tell you why I should know something about it. I have been what they call a committee-man for dispensing the charity letters. We subscribe to almost all the charities in the town, at least to the dispensary and the infirmary, and we get a certain number of letters; and I have dispensed them for the last ten years. On that account, I have come in contact with the men, and I ask them questions. They come from their localities to get those letters. I ask them what is the matter with them, and all that sort of thing; and I sometimes inquire (having belonged to the Sanitary Association,) what sort of a house they live in, and so on.

4987. And from those circumstances you think confidently, that if any material improvement had taken place in the state of the dwellings of these men of Messrs. Stephensons,' you would have heard of it?—Yes, I think so.

4988. Notwithstanding which, you entertain the opinion that no material improvement has been made, so far at least as the working men themselves are aware?—Yes.

4989. (*Mr. Bateman.*) How long have you known Newcastle?—I should say eighteen years at the least.

4990. Do you think you are sufficiently acquainted with the habits of the people who now inhabit the worst parts of the town, to give an opinion as to whether they would keep their own premises clean, if everything outside were in a better condition?—My opinion is, that they would, if they had accommodation; if facility was given to them to clear away filth and so on, I think they would be in a better condition.

4991. You think that it is not so much that filthiness is natural to them, as that filthiness is encouraged by the state of circumstances around them?—I think so.

4992. (*Chairman.*) Have you occasionally, in visiting these places, seen what ought to be in an ash-pit or elsewhere lying about the rooms, and the passages, and so on?—I believe it was in Pandon that we found that one room was made a privy and ash-pit of, at that first visitation. It had been a room which a tenant had left; and the other tenants had made an ash-pit and privy of it.

4993. Do you think it might truly be said of any part of the inhabitants of such a district, that they carelessly threw ashes and filth about their rooms and passages, when they might just as conveniently have put it into an ash-pit near at hand, and not yet full?—I have been in the habit of visiting the working men at their dwellings, and I know a good many of their habits. I do not think that any working man or his wife would do such a thing, if they had an ash-pit to put it in. That is my belief. I believe they have a wish to keep their houses as clean as possible.

4994. And that they do their best to do so, considering the amount of accommodation afforded them?—That is my opinion.

4995. Are you aware of any new houses having been built in this town recently, in a like bad condition?—I am aware of houses having been built within the last ten years with neither ash-pit nor privy attached.

4996. Whereabouts?—In Hanover Street.

4997. (*To Mr. Town Clerk.*) Is that within the borough?—Yes.

4998. (*To Mr. Currie.*) Do you remember any other street within the borough in which the same has happened?—No, I cannot say. I can speak positively with regard to that, because I lived in one of the houses myself.

4999. (*Mr. Town Clerk.*) Who is the owner of it?—I believe Mr. Spore built them, but they are not in his possession now, and I do not know in whose possession they are. They are now putting in three or four water-closets, to suit the whole premises. I do not think they are finished yet; but when I lived there there was no ash-pit or privy or water-closet. The nighest privy was the one at Skinner Burn.

5000. (*Chairman.*) How far off is that?—About 200 yards; and it was a public privy, which no woman could go to, of course.

5001. Was Hanover Street paved?—Not at that time.

5002. Was it paved in last August?—Yes.

5003. (*Mr. Town Clerk.*) The street was a private adventure of Mr. Spore's, I suppose?—I know nothing about that.

5004. (*Chairman.*) And several streets, you say, remain unpaved, although rates are duly collected; for instance, Duke Street and others?—Yes.

5005. Do you know anything of Orchard Street?—There were several cases of cholera in that street.

5006. This last year?—This last year. There were two fish curing houses in that street; and I know that the inhabitants complained very much about those fish curing houses. They sent a petition to the inspector of nuisances; and I was informed only last Saturday, by one of the petitioners, that no attention had been paid to it.

5007. Do you know at what time they petitioned the inspector of nuisances?—It was some time last year. It strikes me it would be during the cholera.

5008. Do you know the name of the inspector of nuisances?—I believe it was Mr. Charlton that they petitioned.

5009. And up to this time, as you have been informed by one of the petitioners, no attention has been paid to the prayer of the petition?—No; the nuisance still exists.

5010. (*Mr. Town Clerk.*) The nuisance of curing fish?—In the summer time they have herrings lying about, and they become decomposed and rotten. They throw them out, and the smell is very bad.

5011. (*Mr. Simon.*) Is it the case that stinking fish is thrown about there on the pavement?—You can smell it a hundred yards off; in another street you can smell it.

5012. Is it in the open way, or on their premises?—I have never been on the premises where the fish are cured; but I have been in the street, and you can smell it.

5013. (*Mr. Town Clerk.*) You can smell the premises?—You can smell the premises in the street.

5014. (*Mr. Simon.*) Do you mean that parts of fish, fish-guts, and things of that sort are scattered out of the premises?—So the petitioners say. I believe one of the petitioners belonged to the town council, Mr. Isaac Burrill.

5015. (*Chairman.*) You yourself are not cognisant of the fact, but, from the information that you have received, you understand it to be so?—I understand it to be so from the information which I have received, and as to the smell, I can speak myself, because I have palpably felt it.

5016. In those cases where you have found the houses of working men furnished with ash-pits and privies, have you found those privies and ash-pits in what you would consider a proper condition?—No; I believe they are very often in a very improper condition.

5017. Not sufficiently cleansed and emptied?—No, not cleansed often enough. My impression is, having had something to do with houses myself, though a millwright by business, that ash-pits and privies should not be combined, for this reason, that the soil and ashes become mixed, and create bad smells, more especially when removed; if they are allowed to lie any time, the stench is very bad indeed when removed; but dry ashes themselves, if vegetable matter is kept from amongst them, would do no harm; and my opinion is that all houses should have water-closets, and that the soil should be carried away instanter.

5018. Have you noticed any bad smells from these privies about these houses?—Repeatedly so; repeatedly so from my own, if it was allowed to be any time.

5019. Have you known any of these ash-pits and privies within the houses?—I believe there are some ash-pits and privies under bed-rooms in Blandford Street.

5020. That is what I mean by inside the house?—It is not exactly inside the house. Supposing a house is one story high, then to gain another room, they carry the next one over the yard, and the ash-pit and privy are underneath it. I believe there are some in existence in that way in Blandford Street and that neighbourhood.

5021. (*Mr. Simon.*) Are you aware of any regulations for the emptying of privies and ash-pits?—No; I am not aware of any such regulations. I know that there was a general complaint during the cholera of the ash-pits being all filled, more especially about Buckingham Street and so on, because some of our men complained to me very much about it, and at that time there was a stir made to get them emptied.

5022. During the last six months has any inquiry been made at your house, or any regulation brought under your notice, for the proper emptying of your own dust-bin and privy?—No, none. In the house that I am in now we have a water-closet and an ash-pit, and we have to empty the ash-pit at our own expense.

5023. Have your neighbours in the same street water-closets or privies?—They are mostly all water-closets in the street which I live in, I think. I am not in the habit of visiting my neighbours much, but I know that in the house next me they have a water-closet the same as I have.

5024. (*Chairman.*) With reference to the water which was furnished to the town previously to and during the last epidemic, did you hear any opinion expressed among the working classes with whom you associated?—It was a general complaint last summer that the water was what they call, provincially speaking, "drumly;" that is a provincial term for being muddy. That was the common expression of the workmen, that the water was very drumly, unfit to drink. I know that it drove many to drink whiskey and water and cayenne pepper. Indeed the water was very bad, to my own knowledge.

5025. Bad to look at?—Bad to look at and bad to drink.

5026. Did you ever smell anything in the water?—I cannot say so much about smell, but I know it had a filthy taste.

5027. (*Mr. Town Clerk.*) Up to that time the water had been good, had it not?—Yes; the summer previous we had not many complaints. Water in our works is very necessary, on account of blacksmiths working and perspiring so much; and they must have water, because we are not allowed to have ale or spirits, and the water should be particularly good. Now I know well that the men at that time complained very much on account of the water.

5028. (*Chairman.*) They drink a great deal of water, owing to the nature of their trade?—Yes, during the hot months of summer.

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5029. (*Mr. Simon.*) Did they complain only of its being drumly, or of its also being foul to the taste?—Bad to look at and bad to taste.

5030. (*Chairman.*) You never heard them say that it stank?—I have heard the expression, "it stinks."

5031. Often, or only once or twice?—Repeatedly. I could not say myself that it stank; but it was a common expression in our factory, when it was taken out of the tap, "Just see how drumly it is;" and as soon as it was lifted up, "Why, it stinks." That was a very common expression.

5032. (*Mr. Town Clerk.*) Was that before July last?—I should say from July up to about August, or so.

5033. You thought that that these Whittle Dean people before had given very fair water, and improved their supply?—I had not heard any complaint previously; but I know it was a very general complaint last summer, when they were pumping the Tyne water in. I was not aware that they were pumping the Tyne water in till I was told. I found fault with the water myself; it was unfit to drink.

5034. (*Chairman.*) The state of the water arrested your attention before you were informed where it came from?—Yes; before I knew. I thought that the engine had been stopped from pumping out of the Tyne; and then when the inquiry came about what they called the drumly and bad water, we were informed that they were pumping out of Tyne, and then that accounted in my view for the bad water.

5035. Do you think that you could notice any effect of the use of that water upon the health of the workmen in the establishment to which you belong?—The men used to complain that it purged them. They had a fancy so. I could not swear that it actually did so; but I have heard the expression that it purged them.

5036. Had you a large number of men at that time upon the sick fund?—We had in August and in September; and I can draw a contrast in that respect, between May and September. Our expenditure for sick and funerals in May was 28*l.* some odd shillings; and in September, 121*l.* and some odd shillings. I believe you will find a return there for each month in the year.

5037. (*Mr. Bateman.*) Are those 28*l.* and 121*l.* all for medicines and expense of funerals?—We do not pay for medicines; we pay 6*s.* per week when a man is sick, and 4*l.* for a funeral. There is a return there, taken from our books, for the whole of last year.

5038. (*Chairman.*) A return of the amounts paid by the Sick, &c., Society, at the manufactory of Messrs. Robert Stephenson and Co., signed by R. G. Thwaites, secretary?—Yes.

5039. Have you reason to believe that this is an accurate and correct account?—I am quite aware of it myself.

5040. I see that for the first eight months of the year, that is to say, till August, the expenditure was pretty much the same, about 30*l.* or 40*l.*?—Yes.

5041. Then, during September and October, the expenses rose to 121*l.*, and to 100*l.*, respectively?—Yes.

5042. I do not there see any evidence of any great effect of the water upon the health of the men during July and August, or of any addition thereby to the expenses of the society?—No; I do not know that it will appear upon that. It does not follow that because a man is purged he throws himself upon the society. A man generally wishes to work as long as he can, because he only receives 6*s.* a week from the society; but he is receiving 24*s.* or 25*s.*, as wages; so that he will actually be sick before he throws himself upon the society, unless he is a lazy man.

5043. Do I rightly understand you to say, in this statement, that the expenses incurred by the sick societies, during the recent epidemic, were such as to break several of them up entirely?—So I am told.

5044. (*Mr. Simon.*) Can you tell us where we can get information on the subject?—I will refer you to one authority. I think Mr. Kerss, the secretary to the Central Union, will be able to give you positive information upon that head.

5045. Would Mr. Kerss be willing to come and give evidence here on that subject?—I cannot say.

It was here stated that Mr. Kerss had been summoned, and was ready to give evidence whenever the Commissioners wished it.

The Chairman stated that Mr. Kerss had called upon him, and had required an amount of remuneration for giving his evidence, which the Commissioners could not sanction; and that, therefore, they had left it to him to tender his evidence or not, as he pleased.

5046. (*Chairman.*) Is there any other point on which you wish to give evidence?—I might announce, since you have spoken about remuneration, that I never for a moment entertained an idea of seeking any remuneration for the loss of my time.

Mr. JOHN HUNTLEY, examined.

Mr. J. Huntley,

28th Jan. 1854.

5047. (*Chairman.*) To what points do you wish to speak?—To the odour of the sewer in Pilgrim Street. For the last two or three years, in the height of summer, the smell from that grate has been such that any one can detect it 100 yards off. There are two grates; one next the Low Bridge, and the other next Bird-and-bush Yard.

5048. Is that where you live?—I live in Painter Heugh, lower down.

5049. But the grate that you chiefly complain of is in Pilgrim Street, at this point?—At Low Bridge top.

5050. Do you say that for two or three years past the odour from it in summer has been objectionable?—It has; and previous to the epidemic visiting this town, the stench from it was that disagreeable that I could nose it at the end of Moseley Street.

5051. Did your neighbours notice it also, as well as yourself?—A few of the parties about the neighbourhood can confirm what I am stating. I expect that in the interior part of the drain there is a slack; and that the night soil and the urine which goes in ferments there. In hot weather you can perceive such a strong odour from the grates.

5052. Is that the only grate that stinks?—There is another grate in Painter Heugh, opposite where I live.

5053. Is that all right?—No, it is all wrong. Down in that neighbourhood it was most fearful.

5054. Then in fact, more than one grate seems to have been stinking very much?—There is one opposite Low Bridge, another opposite Bird-and-bush Yard, and another at the head of Painter Heugh, and the one that I am alluding to is about twenty yards down Painter Heugh; and I can assure you, if you will look at the mortality of the place where these grates are, you will find that my assertions are strictly correct.

5055. A good many people died just about there?—Yes, in Low Bridge. The place where Sir John Fife told me to break open the windows to create ventilation is in a cellar belonging to a party who has a publichouse at the head of Painter Heugh. I cannot recollect the name just now; however, the cellar is below the sewer.

5056. What was the state of the cellar?—It was such that Sir John Fife would not go in to see the party till I had broken the place open.

5057. Had anything from the sewer come into the cellar?—I cannot say whether it had or not, but it smelt very bad. I can assure you that the drainage down in that part is so defective that it is not fit for an ordinary village.

5058. And you have noticed that for two or three years?—Yes, and I can confirm it by two or three people of the neighbourhood.

5059. Is it so all down Pilgrim Street?—No; I will take from the head of the Arcade down to Silver Street end.

5060. (*Mr. Bateman.*) On both sides of Pilgrim Street?—Yes; there is one main sewer in the centre, and each branch drain gives the same odour.

5061. (*Mr. Simon.*) Do you live in that neighbourhood now?—I live in the same place. I devoted three weeks to the visitation system with Sir John and his son, Mr. Joseph Fife, without any recompense from any one. I took delight in doing it for the purpose of trying to conquer the disease, and at the same time labouring under the impression that common sense would, in time, teach the inhabitants of Newcastle to put the town in a fit state.

5062. What districts did you visit?—Principally West All Saints'.

5063. (*Chairman.*) Does that include the Castle Garth district?—No; that is in St. Nicholas.

5064. It includes Silver Street?—Silver Street, all Butcher Bank, and Pilgrim Street, Broad Chare, and so on.

5065. What did you think of the state in which you found the places thereabouts?—As regards Silver Street, there is a tripe shop opposite the churchyard, and there is a narrow lane with no sewerage; they call it Meeting House Lane, and with the ill drainage from this tripe shop it is one complete mass of fever, a regular breeding shop when the weather is hot.

5066. About Butcher Bank, how did you find the localities there?—The lanes are very bad; there is a high one next a public house, on the side of a cooper's shop, where large numbers of Irish people live. I was there with Mr. Joseph Fife, when one was dead, and another in a state of collapse; and I can assure you it was awful.

5067. Did you go into the rooms?—Yes.

5068. How did you find them?—Anything but clean.

5069. Did you ever find the walls damp?—Fearfully; because the general principle in Newcastle, in constructing working men's houses, is to construct them on the cheap.

5070. (*Mr. Simon.*) But these houses were constructed a long while ago, were they not?—They were constructed a long while ago; but then they never considered drainage. There are houses in this town, there are houses in Cowgate and Stockbridge, belonging to the old borough, which were constructed in the time of our feudal war, as they call it, and they are not fit for pigs, at the present time, to live in. I do not know what their sanitary ideas may have been, but they are strictly opposed to mine now.

Mr. J. Huntley.

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5071. (*Chairman*). Have the people got decent privy accommodation about there?—Very bad indeed; in fact, there is none, to tell you the truth. There is a common privy down that locality, called Stockbridge privy; I can assure you it was a disgrace. It was open, and it had been open for a length of time; and after this dire epidemic they covered it over.

5072. Do you think the people would be cleaner if they got better privy and ash-pit accommodation?—There is no doubt at all about that.

5073. It has been suggested to us that the Irish would still be dirty?—There are as dirty Newcastle people as there are Irish.

5074. Do you think they would all of them be clean if you gave them proper ash-pits and privies, and cleaned out the ash-pits and privies properly?—I do not think, if proper accommodation were given to Newcastle, but what the Newcastle people would be as clean as in other places.

5075. Is there any other point that you wish to speak to?—No.

5076. (*Mr. Bateman.*) What is your occupation?—A pavior.

M. Dunn, Esq.

24th Jan. 1854.

MATTHIAS DUNN, Esq., sworn.

5077. (*Chairman.*) You are Government inspector, I believe, of mines in this district?—Yes.

5078. Are you habitually resident in Newcastle?—Yes.

5079. Have you been so for several years past?—A good many years.

5080. From this paper which you put in I perceive that you would wish to be examined as to the cause of certain nuisances in this town?—Yes; the chief nuisance that I beg to speak to is in the neighbourhood where I live, near Barras Bridge, and St. Thomas' Church. Till within the last three years there was a stagnant pool of water there which was a great nuisance; and within the last three years they have made a spacious tunnel over this water. My attention was called to the subject in the beginning of September 1853, when the cholera began to appear. The inhabitants of Lovaine Row felt an excessive nuisance from the extraordinary quantity of bad rubbish that was taken there, the produce of middens and various other offensive matters. They called my attention to it, and I went there and examined into the state of this nuisance, which was self-evident. I also examined the state of the sewer, which very few people had noticed, and I found that this sewer was uncommonly foul, so much so that I addressed a letter to the board of guardians. The first memorial I addressed was signed by several of the inhabitants of the locality.

5081. (*The Clerk to the Board of Guardians.*) Will you mention the date?—I think you will find it about the 23d of September last.

5082. That was after the epidemic?—It was during the time of the raging of the epidemic. There are certain shafts into this sewer. I found that the covering up of this sewer confined the gases; and I proposed to the board of guardians that these places should be elevated above every person's interference and left open with the view that the sewer should ventilate itself. This was disapproved of and has been ever since.

5083. (*Chairman.*) I think you said that your representation to the board of guardians was about the 23d of September last?—Yes, about the 23d of September; I have not exactly the date.

5084. Have you reason to believe that it had existed in the state of which you speak for some time?—Yes, for a good while. I might add that, in consequence of the shutting up of this sewer, the stench naturally backs up the side drains into the houses; and upon investigating the subject more narrowly still, I found the chief cause to be this: there is a mill which works by the water that comes down this sewer, and for the purpose of the mill there is a dam put in three and a half feet high. This has the effect of stopping the water at that particular place, and it tails back about fifty or sixty yards. This sewer has the delivery from the barracks, all Spital Tongues, all Eldon Street, and all round Barras Bridge. All the bad heavy substance is made to lodge there; and to that lodgment I attribute the fermentation that goes on and the noisome stench arising from these gases.

5085. Do you know when this dam was erected?—It has been erected, I suppose, two or three years at least; it was erected when the sewer was completed.

5086. Was the sewer completed before it was covered in?—I think these shafts had been left.

5087. (*Mr. Bateman.*) The shafts were not covered in till last September?—The shafts were covered in, I think, in last September.

5088. (*Chairman to Mr. Town Surveyor.*) When was the dam erected?—Within the last two years. Those shafts are merely for men to go into, merely man-holes.

(*Mr. Dunn.*) They are now covered tight over.

5089. Did you or your neighbours become aware of the nuisance arising from this sewer in consequence of the stench running up the drains into the houses?—Yes, the smells were a great nuisance to these houses long befo e the real cause was discovered.

5090. Then I understand you to say that the inhabitants had for some time been complaining of bad smells, of which they became aware within their own houses; and that you traced those smells to the existence of a dam in the middle of a covered sewer causing a great stagnation of water in the sewer, and a deposit of filth there?—Not quite that; the inhabitants of Lovaine Row complained of an immense quantity of surface refuse that was put there; they were not sensible about the sewer. Now the sewers particularly affect the houses where I live, which is in St. Mary's Place, and in the neighbourhood of Vine Lane, where the great virulence of the cholera showed itself, perhaps a greater degree of mortality in proportion than in any part of Newcastle.

5091. Whereabouts was the surface nuisance of which you complain?—It was almost contiguous to the houses of Lovaine Row.

5092. And the surface nuisance has since been covered up by arching over this sewer?—Yes, and also by putting lime and other substances upon it to a great depth. But I particularly allude to that dam, as being greatly the origin of the whole thing, for it dams back the water. This then becomes a receptacle for heavy substances which come down, and they there ferment and produce these noisome gases.

5093. Did you represent to the board of guardians, on the 23d of September, that the existence of this dam was prejudicial?—No; I was not cognizant of the existence of the dam till the last few days, and I then examined it more particularly. I was surprised that there should be any bad air in the sewer; there is a torrent of water coming down which drives a mill, and the extraordinary thing is that there should be this sewer continually filled with this horrid gas.

5094. Are you quite sure that it was in the interior of this sewer that these foul gases were collected?—Yes, you smell it as soon as you put your nose on the top of the chimney; it strikes you down.

5095. (*Mr. Simon.*) Was there a large quantity of solid matter in the sewer when you looked into it?—I believe 200 or 300 yards of the sewer are foul more or less.

5096. (*Mr. Newton.*) Did you ever trace this sewer through Pandon Dean, and do not you know that it communicates with about ten or twelve rooms occupied by poor people, and that occasionally when the dam is removed and an extra quantity comes down, the poor people are flooded out of these dwellings?—I am not aware of that, but I examined the sewer till its outlet comes into the open ditch.

5097. (*Chairman to Mr. Newton.*) Is that within your knowledge?—Yes, it is within my district; I am cognizant of that fact. I know that these residences of the poor people are sometimes inundated by sewer matter, and that there is an open communication between the sewer and the dwellings of these poor people in Pandon Dean.

5098. (*Mr. Dunn.*) That is lower down than where I am referring to; but I wish it to be considered whether this had anything to do with the extraordinary mortality which took place in Vine Lane, just behind where I live. I think I am pretty correct when I state that there are not more than 120 inhabitants in Vine Lane, and I think I am also correct in stating that nine persons were carried out there dead of the cholera; I am sure I am correct as to eight, and I am told that there were nine.

5099. (*Mr. Simon.*) Do those houses drain into that sewer?—No, I believe there is no drain from these houses; but the back parts of these houses are in a very hideous condition.

5100. Is there any branch drain or sewer along the front of those houses?—Yes, it is represented there, I believe; in the front of St. Mary's Place, I believe there is a drain.

5101. Is there a drain in front of Vine Lane?—No; I was at first told there was, but I am now informed that there is no drain there.

5102. Do many offensive smells come up the drains in St. Mary's Place?—These houses are constantly affected by those ill smells; and it is only some persons that can divine where they come from. Many inhabitants thought they came from their own drains. Now the result of my investigation is to convince me that they come up from this immense mass, which is generated in the way I describe, and ever will be so long as that dam is in that sewer. I submit, what state must it be in in summer, if it is in this state now; and I made a special representation of these facts to the guardians in two letters, I believe, which I addressed to them.

5103. (*The Clerk to the Board of Guardians.*) What you are now speaking of, as to the state of the sewer, has only presented itself to your observation within the last few days?—I beg your pardon; the foulness of the sewer presented itself when I wrote the letters; but the particular subject of the dam I was not aware of till within the last few days; because I was surprised at the sewer being so foul with such a quantity of water running through it.

5104. (*Mr. Simon.*) Did the material collected in this sewer, when you found it so obstructed, merely consist of gravel and rubbish brought down by the water course, or was it of a worse character than that?—No; I think it is the contents of the sewers that sweep down from the barracks, and from Spital Tongues, and from Eldon Street, and from up to Barras Bridge; accumulating masses of all the sewer matter coming there; and that is the way in which I think they lodge, and hence comes the fermentation. If that dam was removed and the masses were removed, I think the torrent of water would constantly keep that place clean; there is a considerable fall.

M. Dunn, Esq.

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5105. (*Mr. Town Surveyor.*) Have you seen it?—No, I have smelt it; and if you go and smell it you can give the same evidence as I give.

5106. (*Mr. Simon.*) Do you find it improved since the period when you complained?—The surface nuisance is improved, because the movement that was then made caused a great deal of lime to be put there; but yet the nuisance really subsists.

5107. (*Mr. Town Clerk.*) The surface nuisance is entirely remedied?—The surface nuisance is remedied.

5108. (*Mr. Simon to Mr. Town Clerk.*) Was the sewer clear at that time?—When we built that sewer it was perfectly clear; but a dam has been made in it to raise the water a certain height, to keep in operation a mill there. I have not seen the dam myself, but I believe it is the case.

5109. Do you allow people to construct dams in your sewers?—It is private property.

(*Mr. Town Clerk.*) It is a stream running through a man's garden; and there has been a placing of drains and sewers into it.

5110. (*Mr. Simon to Mr. Town Surveyor.*) Is it at the present moment the case that the solid matters of the sewerage are pent up there?—I do not know. I cannot speak from any personal knowledge of it.

5111. (*Dr. Robinson.*) Are you aware that a public representation respecting this very nuisance was made to Mr. Rawlinson in 1849?—No, I do not recollect it

5112. (*Chairman to Dr. Robinson.*) Is it your impression that there was an analogous nuisance in existence in 1849?—Yes.

(*Mr. Dunn.*) That would be the stagnant pool I suppose; that was a great nuisance to.

5113. (*Mr. Town Clerk.*) Which was remedied by arching over the sewer?—Yes.

5114. And now you find the sewer itself a nuisance?—Yes; I might mention that long before this thing was examined into so maturely, we had experienced bad smells in all these houses in St. Mary's Place. It did not suit everybody to examine into the minutiæ, and I did not examine into it till September; but I am now convinced of the cause and effect and everything about it.

5115. (*Mr. Simon to Mr. Town Surveyor.*) Is the sewer, which has this dam across it, one of your own construction?—No.

5116. Is it under your control?—It is on private land.

(*Mr. Dunn.*) But it is in the borough.

(*Mr. Town Clerk.*) There will be no difficulty in arranging with them to do what is proper to remove any nuisance, now that the town surveyor is apprised of it; it does not appear that he could know of it.

5117. (*Chairman to Mr. Town Surveyor.*) I understand you to say you were not aware of it previously?—I was not aware of it. I have not seen it myself.

5118. In the year 1853, had you never heard it complained of as a nuisance?—I had not.

5119 (*Mr. Dunn.*) Did you ever hear of bad smells about St. Mary's Place and Vine Lane?—No, I do not recollect that ever I did.

5120. (*Mr. Dunn.*) But other people have?—(*Mr. Town Surveyor.*) I am so accustomed to them, that perhaps I do not feel them as other people do.

5121. (*Chairman to Mr. Dunn.*) In your opinion, it is still in a state which renders it a nuisance to the neighbourhood?—Yes, and always will be until something is done.

(*The following memorial relative to the above nuisance, and dated the 20th November 1849, was afterwards put in by the Clerk to the Board of Guardians.*)

To the Board of Guardians, Newcastle-upon-Tyne.

Gentlemen,—We the undersigned, on behalf of ourselves and others, proprietors and occupiers of houses in Lovaine Row, Place, and Terrace, St. Mary's Place, Eldon Place, &c., respectfully request your assistance to compel the removal of a most injurious and dangerous nuisance caused by the constant accumulation of immense masses of filth, &c., in what is called a mill dam, being also an open channel, situated in a valley a little to the eastward of the Barras Bridge, and surrounded by our dwellings, being supplied by a small stream of water, which is also the *common sewer* course of the numerous houses about the Barras Bridge, Eldon Street, and other places, to the extent of about half a mile westward, with a brewery at the extremity, the stench from which, especially in warm weather, is intolerable. It has been several times complained of and discussed before the magistrates, who have in their possession the needful certificate by two medical men, one of whom verbally described it as a "fearful nuisance." Orders have been given for cleansing or removing the filth. The town surveyor has been subsequently requested by the magistrates to examine and report upon it, the result of which is said to be "that "the cleansing and removal of the filth by laying it, for the time, on the sides of the dam "and water course, adds to the nuisance by the malaria and miasma arising therefrom, "whilst in a very few days there will be a fresh accumulation of filth as injurious as "before, and the only effectual remedy is to remove the dam or obstruction by making a "straight course and covering it over."

M. Dunn, Esq.
24th Jan. 1854.

We therefore most earnestly beseech you speedily to adopt such means as may be in your power to abate and effectually prevent the recurrence of a nuisance so well calculated to affect the health and endanger the lives not only in our neighbourhood but the town at large, by engendering fevers, cholera, and other fatal diseases.

Newcastle-upon-Tyne,
20th Nov. 1849.

We are, Gentlemen,
Yours most respectfully,

[Signed by the witness and fifty-five other persons.]

5126. There is another point, I see, in this paper, with reference to gas?—I wish to notice that the gas here is exceedingly bad. In an ordinary room, where one burner of good gas would be sufficient, we are obliged constantly to burn two, and very often three and I would submit that the atmosphere of that room cannot be very wholesome.

5127. Do I correctly understand you as complaining of the gas with reference to its illuminative power, rather than with reference to its effect on the public health?—I submit that if it is of such a very impure nature that you are obliged to burn two lights or three instead of one, it must tend to vitiate the air.

5128. We have had general evidence to that effect, that the gas is impure; that, more or less, no doubt impure gas would be prejudicial to the health; but we have not yet had any definite instance where any one could attribute a single case of diarrhœa or any other disease to the impurity of the gas. If you know of anything more specific than that, we should be very glad to hear it?— I cannot speak of any specific instance.

5129. With reference to the geology of certain parts of the town, are you pretty well acquainted with it?—I believe that various of your questions have referred to the clays on which the town stood.

5130. You are acquainted with the geology of the town?—Yes, a good deal. The ground in Sandgate is different from that of the upper parts of the town.

5131. What is it in the upper parts of the town?—The upper parts are mostly clay, and when you get to the neighbourhood of Westgate it is mostly upon the freestone rock; but there is a great quantity of sand in the neighbourhood of Sandgate, and I suppose the name has been derived from that circumstance. I know within my own knowledge that in some parts it is eight or ten fathoms thick with sand. I know that at Mr. Crawhall's ropery there are ten or a dozen fathoms of it.

5132. (*Mr. Bateman.*) Sand altogether, or interlaminated with sand and clay?—Mostly sand.

5133. Is it dry?—It is sometimes quick; sometimes there is water in it.

5134. Taking the district of Sandgate and about there, are the houses actually built on and in sand?—Near the gas works down at Sandgate, there is a solid mass of sand.

5135. Fifty or sixty feet thick?—Thicker in many places. I know the lower part of Sandgate is almost entirely sand at the surface, and to a great depth.

5136. *Chairman.*) Does Sandgate form an exception in this respect to the rest of the town?—No; I think there are other such parts along the side of the river, the Sand Hill and up by the infirmary.

5137. Is it sandy at the Close?—I apprehend it would be; twelve or fourteen fathoms below the surface there are regular gravel beds alternating with the coal, then going up again, and then sometimes taking away the coal altogether.

5138. Not interlaminated?—No, but gravel twelve or fourteen feet thick.

5139. We have heard of what are called pot holes, hollowed out of the blue clay; is that what you allude to?—No.

5140. (*Mr. Simon.*) Have you any opinion to offer about the water which is supplied by the Whittle Dean company?—I do not use the water; we have very good water in the neighbourhood of the house.

5141. A pant, or well, or what?—Well water taken from a gravel bed.

5142. Did you notice the Whittle Dean water during the last summer?—No, I have not taken much notice of it. I have heard many complaints of it, but I cannot speak of my own observation.

5143. (*Mr. Bateman.*) Do you know the manner in which the various pants and springs of water are supplied in Newcastle?—Yes, they are mostly supplied from gravel beds. There is a bed extending in many parts of the town. All up in the neighbourhood of the Barras Bridge I know there is a gravel bed which produces constant supplies of water.

5144. Is there any communication between the drainage of the sewers or houses and these gravel beds?—No, I should think not, because we have very good water in the midst of neighbourhoods where there is a considerable nuisance; it does not seem to affect it at all.

5145. Nicely tasted water?—It is as excellent water as can be; bright and excellent water.

Mr. Andrew D. Greaves Davidson, examined.

Mr. A. D. G. Davidson.
30th Jan. 1854.

5146. (*Chairman.*) You wish to speak to the sanitary condition of Spital Tongues?—Yes.

5147. Are you an inhabitant of Spital Tongues?—Yes.

5148. What do you consider is the sanitary condition of the place?—Very bad indeed.

Mr. A. D. G. Davidson.

30th Jan. 1854.

5149. Was it the same in August 1853?—It has been so for many years.

5150. You say in this paper that there is only one drain in the village; is that the case?—Yes.

5151. (*Mr. Simon.*) Only a drain to one house, or only one main drain?—One drain carried up behind certain houses.

5152. Would not one drain be enough?—No; it serves only for sixteen houses.

5153. It only serves part of the houses in the village?—Just so.

5154. Do they drain into it?—Yes.

5155. (*Chairman.*) This drain discharges into the burn which flows uncovered in front of several houses facing the Leazes?—Yes.

5156. (*Mr. Simon.*) Do you mean that all their privies open into it?—The refuse water from their sinks goes into it.

5157. Not their privy stuff?—No.

5158. (*Chairman.*) What is the result of this discharge into the burn, which flows uncovered in the front of the houses?—We call it a burn, though it is not exactly a burn. It is supplied from the mill above Spital Tongues. In summer time, when the mill is not on, people go and put their filth and dirt into this burn side, and the heat of the weather causes it to smell most awfully, enough to knock you down sometimes.

5159. Was that the case in August 1853?—Yes; it is so every summer. Sometimes the water does not run for months at the mill.

5160. You state that the viewer of the colliery has provided an ash-pit and privies recently; is that the case?—Yes.

5161. About what time did he do so?—After the epidemic.

5162. Is that on the public road leading to the Cowhill and the village of Kenton?—Yes.

5163. Do you think that it should have been placed in a different position?—Quite so.

5164. Where?—Behind the Pit Row, where it would have been out of the way of every one.

5165. Has it become a nuisance?—A very great nuisance.

5166. At the time this place was being erected, did any one come to you and complain that it was not a proper position for it?—Yes; Mr. Charlton, the inspector of nuisances, happened to be up at that particular time, and he asked them what they were doing there. They said they were going to erect an ash-pit and privies. He said it was not a fit and proper place for it, and that it would not be allowed to remain there. However, it appears to have gone on, notwithstanding his notice; and it is a very great nuisance to the place. It is called Mr. Hunter's monument to the cholera.

5167. Is there any drain leading away from it?—None whatever; it is only about ten yards from the houses.

5168. You wish also to make some statement as to the accumulations of filth about the Spital Tongues, which a gentleman, who gave evidence before us here, considered to have been entirely removed, so that the place was now in a very good condition?—Yes. Behind Douglas's Row it has accumulated for several years. It has occasionally been removed; but is now about thirty feet broad and five feet high, and has been so for a very considerable period.

5169. Then there must have been a slip of Mr. Harvey's memory?—I think it is so high that he probably would take it to be the road instead of a midden. It is fully four feet above the footpath below it.

5170. (*Mr. Simon.*) Was that neighbourhood very dirty last summer?—Yes; dreadful.

5172. (*Chairman.*) Thirty feet broad and five feet high, you state?—Yes, fully that; and about forty yards long.

5173. When they remove the filth from Hunter's Monument, where do they deposit it?—Behind our houses, in a place which was used, before the present owners had the colliery, as a brick-yard; but now they make it a deposit for all the filth and ashes about the place.

5174. How far is that from the houses which you allude to?—About fifty yards.

5175. Is that near enough to be a nuisance?—A very great nuisance. It is like a corporation midden now instead of anything else.

5176. (*Mr. Town Clerk.*) Like a public midden?—Like a public midden.

5177. (*Chairman.*) Is there also another large heap in process of accumulation?—Yes, a very large one indeed.

5178. Where is that?—About forty yards from where I live.

5179. Is that a nuisance?—Yes; it is composed of the refuse from the pit, hot ashes, and the refuse coal, and it ignites and burns, and the sulphur that arises from it is enough to suffocate you. In the house last night, for instance, when the wind was in that direction, you could hardly breathe.

5180. Was it in course of accumulation in August last?—Part of it was. They were just commencing at that time to deposit there.

5181. Have you any other complaint to make?—I think that the owners of the colliery appear to be making the place as bad as ever they can, and without at all improving it. There is no drain at all in the pit-hole to take the water away. It is all what you call gutter water; the water flows into the burn side that I am speaking of, and behind the pit-hole, too, there is another drain where the people throw their filth, an open gutter.

Mr. A. D. G. Davidson.

30th Jan. 1854.

5182. On the whole, your opinion of the sanitary state of Spital Tongues does not seem to be at all favourable?—It is very bad indeed.

5183. Have you any complaints to make about the water?—I have heard a great deal said about the water of Spital Tongues. It comes from a fountain that was always noted as a splendid water, but since the erection of the union workhouse, all the refuse from that place comes down through certain fields to the Moor edge, and there gets into the old workings, and mixes and contaminates the water that flows out of the fountain. I was not particularly aware of that myself till last summer, when our pump got dry, on account of letting the inhabitants have the use of the water, and my people happened to send up to the fountain to get some. I was not aware of it till I got some myself, and said, "What have you been doing with the pump; the water is very bad?" They said, "It was the fountain water."

5184. Did it taste bad?—Yes.

5185. And smell bad?—Yes; it smelt like rotten eggs.

5186. (*Mr. Town Clerk.*) We have had it analysed lately, and it does not present any such features. There must have been some accidental circumstance?—Mr. Charlton, the inspector, tasted it, and he said he could not get the taste out of his mouth for two or three hours afterwards.

(*Mr. Charlton.*) It did not taste like rotten eggs. I can scarcely describe the taste.

5187. (*Mr. Simon.*) Should you have liked or disliked it?—(*Mr. Charlton.*) I did not like it.

5188. (*Mr. Town Clerk to Mr. Davidson.*) You ascribe it to the union house?—Yes, entirely.

5189. That water has five parts of carbonate of lime, twenty parts of sulphate of lime, and nine parts of soluble salts in it, but they do not report any organic matter in it?—It had a very bad taste, and it had a very bad smell; that is all I can say about it.

5190. (*Chairman.*) Is there any other point?—Nothing further than that I think the proprietors of the colliery ought to be stopped from making all these nusances in the neighbourhood. We are in the municipal borough, and we have to pay rates for paving and sewers, for which we get no compensation at all.

5191. Are not you lighted and paved?—No, we have no lights and no paving at all.

5192. (*Mr. Hamond.*) Orders have been given now for the paving and lighting Does this nuisance remain yet on the part of the workhouse?—Yes, it does.

5193. Have you seen it lately?—No, but I understand so.

5194. How long is it since you did see it?—I have not seen it since Mr. Charlton and I were there.

5195. Orders were given to remove it some time ago?—But I do not think they have been executed. I have heard say that it is still there. I inquired yesterday.

Mr. Thomas Kendal Winter, sworn.

Mr. T. K. Winter.

28th Jan. 1854.

5196. (*Chairman.*) What evidence do you wish to give us?—The property in Clogger's Entry had been in the possession of my father for a long time, and during his occupation and superintendence of it I knew nothing about it. After his death, my brother-in-law had the management. I was then away from the place, and after my brother-in-law died I took the management, about a year and a half ago. When I took the management it was in a very bad state of repair, and from that period up to the present I have gradually, with the means I have in my power, endeavoured to put it in the best possible condition. I have attended also, so far as I was able, to the comforts and cleanliness of the tenants; but I find that they are very perverse, and if I were to be with them in the morning, watching over them, they would commit acts of dirt before my eyes. I have a person employed that cleans the yard out every morning, and she says that they actually come and throw their pots at her foot when she is sweeping, saying, "You are well paid for it; do it." I made it a rule also with them that whoever takes a house must clean it, and also wash their stairhead once a week. I found that all these things were not done. For a little time it goes on, and after it has been done week after week twice or thrice, I cannot get it accomplished any more, and I have to do this in order to get it effected. Another point is this, with regard to the stagnant sewage at the back of the premises.

5197. (*Mr. Bateman.*) Is that the one which Mr. Winship spoke of?—Yes; it is a public drainage. It has been there from time immemorial, and it runs at the back of my late father's premises and at the back of the Westgate Street premises, and it runs up into Collingwood Street. When I was a lad there was a flush of water, which used to run down there continually, by which all the excrements were gradually washed away into the Lort Burn. We had two privies; one was a large one, which had connexion with this sewerage, and it was with open seats, but there was accommodation for three or four men; it was entered by a long passage, a passage, perhaps, of ten yards, and it was distinct from another privy that we kept, appropriated to the females. The habits of the men became such, that instead of going up to the end of this place, and doing what was right, they actually sat down in the passage, and my father was obliged to board it up.

Mr. T. K. Winter.

28th Jan. 1854.

5198. Do you know of more than one privy in that entry?—Yes, two. I can show one now, to which I have a private entrance, for the accommodation of a large number of joiners, who occupy a large space of the yard, and they keep it clean and in order.

5199. What are the other people residing in Clogger's Entry; are they of any trade?—They are general labourers, I think.

5200. (*Mr. Town Clerk.*) Are they natives or Irish?—Principally Irish; but I intend to get all the Irish out, and I shall do all I can to improve the property. With regard to that stagnant pool, I am willing to join the corporation, or the rest of the occupiers and owners of property, to do anything that is requisite to obtain a flush of water, or to do that which has a tendency to promote the public health.

5201. (*Chairman.*) I see that this is a place where there were ten deaths in 70 inhabitants?—Yes; but some of the deaths I attribute to the injudicious conduct of the inhabitants themselves. Previously to the cholera I had them all together; I spoke to them about its coming, and told them what to do, and I had a man constantly washing the passages, and also the rooms, and I gave them every possible information to put them on their guard; but they are under such feelings of superstition that, instead of running for the doctor or for medicine, they ran off for the priest. After a person died, they washed the body and took off the clothes; they shook off the clothes, and also the bed; one or two, I believe, died in consequence of that. Some of them would sit down in their dirt, and scarcely wash their skins. Wherever you find that a tenant adopts the system of attending to his house, that property becomes, in every sense of the word, habitable and pleasant to look at; but they destroy property themselves. A party has come in lately of three shoemakers, and the condition of that house is shocking. I have ordered them out, and the place is just like their own dirty clothes and skin, and everything else.

5202. With reference to this privy which you said you had to shut up; was it lighted?—Not at nights, but if I thought that they would use it properly, I would have a light.

5203. How can you expect such people to do otherwise than use the entrance of a long and probably dirty passage, if there be no light in the place?—I used it myself at nights when I was a lad.

5204. Perhaps at that time there were not so many persons using it?—The place was occupied with tenants then, but, I believe, of a better class.

5205. (*Mr. Bateman.*) Formerly what were the class of people who occupied the property?—They were natives of the town generally.

5206. (*Chairman.*) Not so dirty as these Irish?—No.

5207. (*Mr. Simon.*) Now is there no privy there at all?—There is one privy; but even now it cannot be properly used, in consequence of the sewage being stagnant.

5208. (*Chairman.*) How many years ago did you fasten the privy up?—Five or six years ago.

5209. And is this open water-course behind still offensive?—It is; it cost my father about 10*l.* to clean it out several years ago. Whatever nuisance it creates now could be obviated, I think, if we had a flush of water at the top of the place.

5210. Do you remember what was the state of the grates which have been alluded to opposite the entrance to the entry?—Yes, when I was a boy, they were very shocking and filthy.

5211. How are they now?—A good deal better; they are attended to; I know that during the cholera the people did attend to what was proper with their night pots.

5212. Is there any other point?—No other point. I thought it was right in my own defence to state these things with regard to Clogger's Entry. I am disposed, in conjunction with the corporation or the other owners of property, to do what is right for the convenience and advantage of the inhabitants of the town.

5213. (*Mr. Bateman.*) Do you think that if these places were improved by the owners of the property they could be kept in a proper condition?—I think not. When adults get settled down in certain habits it is difficult to eradicate them.

5214. (*Mr. Town Clerk.*) You must remove them?—Yes, I intend to do that; I can only do it by degrees; as soon as a tenant applies for a room, I make inquiries for his character, and then a party goes to the house to see what property he has.

5215. (*Mr. Bateman.*) Do you find that persons getting among those with dirty habits follow the practice of their neighbours?—Not a good tenant; his family retain their cleanly habits.

5216. And can you get a good tenant on property of this description?—Not at present; the whole place will have to be eradicated.

5217. (*Chairman.*) Do you mean pulled down?—No, I mean the tenants; I have partially paved the yard, and I have erected numbers of spouts.

5218. Carrying the rain water off?—Yes; and I have had masons and bricklayers making the roof water-tight.

5219. (*Mr. Bateman.*) Do you get a thorough draught of air through the alley?—Yes.

5220. (*Chairman.*) It is not open at the end, is it?—It is not open, not a thoroughfare; but it is open sufficiently for draughts.

5221. (*Mr. Bateman.*) Only a covered passage at each end, is there?—No, there is not a covered passage at each end; there is a little cover at the top of the yard, but it opens out after that into a large area; there is no entrance from Westgate Street.

Mr. T. K. Winter.

28th Jan. 1854.

5222. And a covered passage from the other part?—A covered passage at the beginning.

5223. (*Chairman.*) Which is a footway only?—Yes.

5224. The houses on each side of this entry are built back to back with the houses of other entries?—Yes, of course they are.

5225. (*Mr. Bateman.*) What is the width of the chare?—Eight feet.

5226. (*Chairman.*) What is the width near the Side?—It is nearly a uniform width all the way up; it is rather wider a little higher up, I think.

Mr. N. Gibson.

Mr. NICHOLAS GIBSON, sworn.

(*Mr. Gibson.*) What I wished to state before the Commissioners was this, that one principal difficulty which I have found in the management of tenemented property, has been the want of facilities for getting ash-pits and ash-middens emptied. For some time, even for twelve months past, we have found it difficult; but since the outbreak of cholera, the pressure being greater, I have found the difficulties very much increased. We are summoned on the one hand by the authorities for not having it done, and on the other we are prevented doing what we would from the fact that we cannot get persons to do it. The parties in the habit of doing such things take their own time and make their own charges; and I have frequently known people wait for weeks, who have been very anxious to get their middens emptied, before they could do so; doing their very best, and making every inquiry.

5227. (*Mr. Simon.*) Are there no persons who call regularly for the removal of such stuff?—No.

5228. When you wish to have the contents of your midden and privy removed, are you obliged to find some one for yourself, some person connected with a farm, or some person of the kind, to remove them?—We are obliged to make inquiry for parties who go about emptying out ash-middens, and sometimes we have to inquire for days before we can find one. When we have found him he perhaps will not have time; he charges mostly a sovereign; I know it cost my father 16*s.* for emptying out a small midden within the last fortnight.

5229. (*Mr. Bateman.*) Is there no office at which you can inquire?—No. If the corporation would rent this business to some responsible party, to whom application could be made, and who should make a reasonable and equitable charge for the removal of such filth, the sanitary state of the town would be very much improved by it.

5230. (*Mr. Town Clerk.*) Or if the corporation removed it themselves, as they do at Manchester?—Yes.

5231. (*Mr. Simon.*) What you would be glad to have would be some regular opportunity of getting rid of your refuse?—Yes, and that at something like a reasonable and equitable charge.

5233. (*Mr. Town Clerk.*) To what locality do you refer when you speak of the difficulties of getting ash-pits emptied?—I have found it even in my own locality; and I have tenemented property under my charge where it is more especially the case.

5234. In what part of the town is that?—In Pitt Street.

5235. Pitt Street, Arthur's Hill; you are speaking of the suburbs?—Yes. I do not wish to make any complaint; but I wish to have something of the kind established.

5236. (*Mr. Simon.*) Have you ever lived within the old borough?—I do now. In Portland Place, New Bridge Street.

5237. Have you experienced that difficulty where you live?—Yes; and many parties, I find, make the same complaint; not against the corporation, but they feel that difficulty in keeping their ash-middens in a proper condition, and getting them emptied often enough.

5238. (*Mr. Town Clerk.*) On account of the expense of it?—Not entirely. They cannot get men to do it. There is another thing. I can fully corroborate Mr. Winter's statement with reference to the difficulty of keeping places clean, from the filthy habits of the tenants. I believe that no regulation, however good, will keep the places long clean, with the habits that many of our population have got, even English as well as Irish. The Irish are very bad and filthy sometimes. I find the English sometimes as bad.

5239. If you cleansed the house one day for them, what would be its state the next?—It would get very dirty, and dirtier still the next.

Mr. G. B. Richardson.

Mr. G. BOUCHIER RICHARDSON, sworn.

5240. (*Mr. Simon.*) Where do you reside?—In Clayton Street West.

5241. Have you come to speak of the condition of the house drainage in that locality?—To some extent.

5242. Will you have the kindness to give the Commission any information which you may possess about it?—The principal point to which I make reference in my own locality is, that there is an ancient stream which runs within about thirty yards of my place of business to the west.

Mr. G. B. Richardson.

28th Jan. 1854.

5243. (*Chairman.*) Whereabouts in Clayton Street do you reside?—Between Newgate Street and Fenkle Street.

5244. On which side of the way?—On the south side of the way.

5245. Beyond the little entry which goes down behind Mr. Town Clerk's garden?—Exactly; and the little entry which you are describing is the line of that water-course.

5246. It is covered over?—It is covered over mainly.

5247. Do you reside between that water-course and Fenkle Street, or between that water-course and Newgate Street?—Between that water-course and Newgate Street. That water-course runs down past the back of the houses on the west side of Newgate Street, and by the back of St. John's churchyard, through Pudding Chare and Collingwood Street, to the head of the Side.

5248. And there into the Lort Burn, I suppose?—Yes.

5249. (*Mr. Simon.*) Do you find that that is a nuisance to you?—It is decidedly a nuisance in the neighbourhood; and lately I, in company with Mr. Winship, the surgeon for the parishes of St. Nicholas and St. John, visited the whole course of it, and we traced some parts that were not known to me before. Some portions were open, and they were described by the inhabitants of Low-Friar-street, through which it passes a little further north than where I live, as producing noxious smells frequently. We also made inquiry of the people living over and by it, and we found that there had been a greater amount of death from cholera in the immediate line of that burn than in places nearly adjoining.

5250. Do you suffer in your own house from stinks?—Yes; I do not know that they arise from this water-course itself, but from a branch which probably runs into it.

5251. What branch is that?—Merely the branch, I suppose, from the water-closet to the house.

5252. Of your own house?—Yes.

5253. Is it drained, is it a water-closet or a privy?—I occupy only the premises on the basement; and the smell arises from the water-closet of the house above. It is badly constructed; my printing office is situated on the basement.

5254. And there arises through the stone floor a smell?—Yes; every now and then, through chinks and crannies in the floor, and it is very inconvenient even to investigate the cause of it; it would cause a disruption of the whole place.

5255. Do you know whether there was any diarrhœa in your house during the period of the cholera?—I believe that all my workmen were partially affected with it, but none of them were laid up.

5256. Do you know of anything else relating to the drainage in your locality: for instance, as to complaints of the same sort being made in any other houses?—I cannot say that I do; they have not come before me.

5257. Is there any other point on which you wish to give evidence?—I have given attention for some years to the condition of the town in former ages in reference to pestilences, and in reference to the natural drainage by ancient streams.

5258. We shall be very glad to have any information which you can give us upon these points?—If you think it would be of any value; I do not think it would refer to the present subject. All these ancient streams are now, I believe, more or less covered over and form the principal drainage of the town.

5259. Which are they?—The Lort Burn in the centre.

5260. (*Chairman.*) Skinner Burn?—Skinner Burn on the extreme west, and then Pandon Dean and Ouse Burn on the extreme east. There are others, but they are comparatively of little importance; there is the Erick Burn which runs into Pandon Dean.

5261. And also Bailey Burn which runs into Pandon Dean?—I believe it is one stream named differently at different points.

5262. (*Mr. Simon.*) Where is Erick Burn?—The Erick Burn runs across Percy Street from the Leazes.

5263. (*Mr. Bateman.*) By Spital Tongues then?—Yes, I believe it has its rise in springs on the moor, and I think it comes partially down Northumberland Street across Saville Row, runs beneath the Trinity church in New Bridge Street, and down Erick Street which is named after it.

5264. (*Chairman.*) It runs along one side of the groi?—Yes, and down Manor Chare to Pandon Dean.

5265. (*Mr. Simon.*) And that is converted into a sewer there?—I should think the drains are let into it; there is always a very large body of water in it. I have seen it open several times.

5266. I think Skinner Burn is the one which we have least information about. Can you tell us anything about that?—Yes. It has its rise on the Leazes, and runs down Bath Lane, which is in the Arthur's Hill district; it runs partially open there, and then it runs across the Westgate, down Thornton Street, all under the level now. Thence it goes past the end of Derwent Place, the lower end of which is built upon its ancient bed; thence round the Cattle Market, by Marlborough Crescent, beneath the west end of the infirmary, down the hill to the river.

5267. (*Chairman to Mr. Town Clerk.*) That is about the boundary of the old borough?—Yes; the Skinner Burn was the ancient boundary on the west.

(*Mr. Richardson.*) The real name of the burn is Gooden Dean; it is only Skinner Burn at the mouth, where the skinners washed the hides.

Mr. G. B. Richardson.

28th Jan. 1854.

5268. (*Mr. Bateman.*) Is the Lort Burn the one which goes past St. Andrew's church?—Yes.

5269. That is very foul, as I know?—It is very bad; it runs open in Green Court yet.

5270. And at the back of Mortimer Court?—Yes, it is the same place.

5271. (*Mr. Town Clerk.*) It has been stated by one witness, that things were better when the burns were all open; and that the mischief has been done since they have been covered in. You would not agree with him?—No. These things were all provided with common privies erected on their banks at the period when they were lying open. I may state that that stream which I first mentioned as passing my own locality is still open south of Collingwood Street; and the mischief has been done in that case by the sewer that was made in Collingwood Street. It cut off the communication from the north; the consequence is that there is stagnant water lying in the now disused water-course south of Collingwood Street.

5272. (*Chairman.*) That is a tributary of the Lort?—Yes.

5273. (*Mr. Town Clerk.*) Collingwood Street was made in 1809, I think?—It was, but the sewer which has been the cause of the stagnation was put in very lately.

5274. (*Mr. Bateman.*) With reference to that stagnation of water which has been spoken of by Mr. Winship and by other parties near Collingwood Street, I am afraid I have not yet quite got into the reason of its stagnating there. The water flowing down to it has been cut off and diverted into other directions?—Yes.

5275. But would not the water from the part to the south of it carry off properly whatever accumulated there?—No; the decline is not sufficient.

5276. It would not do so unless there was a flush of water to carry it through?—If it was flushed it would, of course, carry that and everything, but there is no decline.

5277. So that whatever is deposited of a heavy character remains there?—Yes.

5278. And gradually chokes it up, and the water above becomes stagnant; is that it?—I have looked down from windows in that overcrowded locality, and noticed it standing just like thick black mud beneath, and a fearful smell arising from it.

5279. (*Mr. Town Clerk.*) These burns run through private property?—In many cases they do.

5280. (*Chairman.*) Is there any other point on which you would like to offer us any evidence?—I could give you a vast amount of matter.

5281. (*Mr. Simon.*) Have you any papers on the subject?—I have written a small work on the subject of the pestilences which have ravaged the North of England, with preliminary observations on the drainage and sanitary condition of the town. I shall be very happy to present to the Commission a copy of it; I have one now in my possession. (*The witness handed in the same.*)

5282. (*Mr. Town Clerk.*) It was not written for this occasion?—No, it was written for the Society of Antiquaries in this town.

5283. (*Mr. Bateman.*) Have you traced the epidemics to any particular causes from time to time?—It is quite evident that it was considered, at the period to which I refer, the fifteenth, sixteenth, and seventeenth centuries, that dirt and filth were the leading cause of the pestilence and disease; and the Corporation then took every means apparently in their power to destroy the infection that seemed to be hanging about.

5284. (*Mr. Simon.*) In the 16th century they adopted works of sanitary improvement?—Decidedly. The removal of nuisances of all kinds; the burning of tar barrels, and the killing of vermin as they were considered, geese and swine and ducks running about the streets, and dogs; they were considered to carry the infection from house to house.

5285. (*Mr. Town Clerk.*) You do not see any swine moving about the streets now-a-dys?—Not now.

5286. (*Mr. Bateman.*) As the epidemics successively occurred did they always appear to be attributable to the same cause?—They almost invariably appear to have adopted the same precaution, or means of riddance. The sick were taken out into the fields in tents.

5287. (*Mr. Town Clerk.*) What pestilences do you speak of?—I speak of the pestilences of Elizabeth's time, chiefly.

5288. (*Mr. Bateman.*) That would be in the 16th century?—Yes.

5288. (*Mr. Simon.*) Of the plague?—Yes.

5290. (*Chairman.*) How many doors are you from the entry in Clayton Street West, under which the drain goes?—About five or six houses, I think; I am not exactly certain.

5291. There was no death within those six doors from you?—Not within those six doors from me.

5292. It was just the house on the other side of that entry where there was a death?—Yes.

5293. And from there to the south west, along Clayton Street, there were five, or more?—Yes.

5294. (*Mr. Bateman.*) Do you find in the history of all epidemics, that the authorities of the time were, at the time of the epidemic, anxious to remove all dirt and filth, and cleanse the place?—Yes; I believe I have almost invariably found it so.

5295. Then from that you would infer that, at each successive visitation of the epidemic, they were of opinion that dirt and filth had something to do with the pestilence?—Yes.

Mr. G. B. Richardson.

28th Jan. 1854.

5296. And that the previous removal of all this accumulation, or the prevention of this accumulation might have, to a great extent, mitigated or prevented the pestilence?—I have no doubt they were well aware of it; but I suppose they found a difficulty in inducing people to be more cleanly. Orders were made on special occasions to make the streets sweet and clean opposite each door; but there does not appear to have been any settled system of scavenging.

5297. No systematic plan of carrying out the precautions which they thought to be necessary?—By no means. There were very large dung-hills in the town at that time.

Mr. W. Wilson.

27th Jan. 1854.

Mr. William Wilson, sworn.

This witness made two complaints about the sewers in this town: the sewer in Pilgrim Street having been put in above the level of, and having flooded, the cellar of his former house there, No. 13, since swept away to make room for the railroad; and the branch sewer in High Friar Lane having been put in at so small a depth, that, although the drain from the water-closet of his present house there had been introduced into it at the very bottom of it, the fall obtained was so very small, that the drain would not act properly, and so had become completely closed up. He also spoke to the filthy state of the gratings in certain parts of the town, owing to the absence of privies; and made some complaints as to the rates charged by the water company, and as to other of their proceedings, not bearing very immediately on the objects of this inquiry.

Mr. W. Richardson.

30th Jan. 1854.

Mr. William Richardson, examined.

This witness made a lengthy and somewhat obscure statement concerning the drainage in Marlborough Crescent, respecting which a controversy between himself and some of his neighbours and the local authorities appears to have been going on ever since 1835, and respecting which various memorials and inquiries appear to have been presented and made. The facts of the case, however, are so much in dispute, the position of the Crescent (exactly on the borough boundary) so peculiar, and the bearing on the object of this inquiry so slight apparently, that it has not been thought requisite to go into it at length. The subject is alluded to in the evidence taken by Mr. Rawlinson in 1849. Vide ante. p. 38, bottom.

The following is one of several memorials of the kind, which at different periods of the inquiry were forwarded to the Commissioners, (several of them anonymously), with reference to details of nuisances, into which time would not permit of the Commissioners inquiring.

To Her Majesty's Commissioners, &c

Gentlemen,—We the undersigned being ratepayers of the parish of South St. Andrews, do hereby make complaint of a most grievous nuisance with which we have been annoyed for several years, viz: the two privies at the north-east end of the New Market.

The stench arising therefrom daily enters our shops on the ground floor, even in cold weather; but in hot weather it is most intolerable, to the injury of our health and of the sale of our goods, which for the most part are articles of food.

Also our staircases and bedrooms are the same, the stench arising from a ventilator in the roof of the privies just below our chamber windows.

We have, some of us, repeatedly spoke to the corporation servants (this being corporation property), but have hitherto got no satisfaction or redress.

We have therefore to hope that you will be kind enough to take such steps to assist us as to you may appear needful and necessary.

(Signed by fourteen ratepayers, resident in Nelson Street, the Green Market, Butcher Market, and Clayton Street.)

Mr. R. Nicholson and Mr. D. D. Main.

25th Jan. 1854.

Mr. Robert Nicholson and Mr. David Darling Main, sworn.

5298. (*Chairman to Mr. Main.*) You are secretary to the Whittle Dean water company?—Yes.

5299. (*To Mr. Nicholson.*) And you are engineer?—I am.

5300. The company's first act was obtained in 1845?—It was.

5301. The works were completed and the water brought in from Whittle Dean in October 1848?—They were.

5302. What was your then drainage area?—It was very nearly 3,600 acres.

5303. What was your reservoir capacity?—215,000,000 of gallons.

5304. What was your daily consumption?—In October 1848 it was 1,000,000 of gallons a day.

5305. Then it had considerably increased since the issuing of your prospectus in 1845?—It had. In the year 1845 the consumption was about 700,000 gallons a day. The works for supplying the town at that time, in 1845, were the Newcastle and Gateshead subscription water company's works. These works were purchased by the Whittle Dean company, who took possession of them in August 1845, and carried them on from that time forward.

5306. Till their own works came into operation?—Yes; and the consumption during that time had increased, as I have stated, from about 700,000 gallons a day to 1,000,000.

5307. (*To Mr. Main.*) Do you know who is the author of this pamphlet, "The History of the Water Supply of Newcastle?"—Yes; I wrote it myself.

5308. Then the statements in it are substantially correct?—As far as I am aware.

(*Mr. Nicholson.*) I should state that there is one not material error in it. It is stated there, I believe, that the consumption in 1849 was 1,500,000 gallons; it was so about the end of 1849, but the average throughout the year 1849 was about 1,350,000. I speak from my own experience.

5309. The prospectus of the company, I think, alludes to a ten months' storage capacity in the reservoirs, on a daily consumption of 700,000 gallons?—Possibly so; I did not write that. I had nothing to do with the prospectus. I should state that I was not the engineer when the Act was obtained. The works were all designed by Mr. James Simpson, of London, but they were executed under my direction. I was not connected with the company when the prospectus was issued, nor when the Act was obtained.

5310. But calculating from your storage capacity of 215,000,000, and a daily consumption of 700,000 gallons, you will find, will you not, that it is about 307 days' storage?—Yes.

5311. Then at the time of the coming into operation of your works in 1848, when your consumption had increased to a million gallons a day, you only had 215 days', or seven and a half months' storage in your reservoirs?—That is so.

5312. In the year 1849 you had a remarkable abundance of water, had you not; so that the amount stored in your reservoirs never got much below 100,000,000 gallons at any period in the year?—About 100,000,000 was the lowest point.

5313. At the end of 1849, I understand you to say your consumption had increased to a million and a half gallons?—Thereabouts. I take the average of 1850 at a million and a half.

5314. In the year 1850 your water failed you in the summer?—It did.

5315. On the 22d of July you had got as low as 55,000,000 gallons?—Yes, I have it on the 23d of July.

5316. Which was about thirty-six days' store, according to your then rate of consumption?—It was.

5317. On that 22d of July you began to pump from the Tyne?—On the 23d of July we did.

5318. Under the powers, as it were, of the old company, whose works and rights you had bought up by the 36th section of your Act?—Yes.

5319. You pumped till what date from the Tyne?—About the end of October.

5320. For about fourteen weeks?—That would nearly be fourteen weeks.

5321. At what rate a day did you pump?—The total quantity pumped was from 80,000,000 to 84,000,000 gallons.

5322. And notwithstanding the obtaining of these additional 80,000,000 or 84,000,000 gallons from the Tyne, the amount in your reservoirs got below 20,000,000 gallons towards the end of September, did it not?—It did.

5323. And it continued for about five weeks below 20,000,000, though never below 12,000,000 gallons?—Never below 12,000,000.

5324. At that time were you filtering your water?—We were. I should state that those works at Elswick, where we took the water from the river Tyne, were constructed by Mr. Hawkesley in the year 1836. There were two subsiding tanks and a filter bed. The water in 1850 was all filtered after having subsided, in the same manner as previously to 1848.

5325. You used the filter works of the old company, if I understand rightly?—We did.

5326. What was the area of your filter?—About 10,000 feet. I have not the exact dimensions here.

5327. What was the nature of your filter?—It was from five to six feet deep, nearly six feet. The bottom was broken stones, then gravel, and then sand, in about equal proportions.

5328. Owing to this failure of water in 1850, you began in 1851, I believe, to make some new works?—No sooner did we discover that our works were not adequate to the demand, than we made arrangements with the landowners, and commenced works, during the summer of 1850, to bring 1,000 acres of additional drainage into our reservoirs, and also the overflow from the River Pont when the water in that stream was more than the mills required. That was done, as I say, by arrangement, we having no Parliamentary powers. We also arranged with the landowners, and immediately after the winter of 1850-51 commenced constructing a large additional reservoir, containing 115,000,000 of gallons.

Mr. R. Nicholson and Mr. D. D. Main.

25th Jan. 1854.

5329. You did this voluntarily, and without any threat of a rival company, or any compulsion whatsoever?—We did. Not a day, not an hour was lost. I need not tell you that this, being permissive only, required time; but I can assure you that not a day was lost after we discovered, in 1850, that our works were not ample for the supply of the town, in making those arrangements; and the construction of the works was carried out with the utmost speed, so that, at the commencement of the autumn of 1851 the reservoir which I have spoken of was completed and fit for use. We then had a storage of 330,000,000 of gallons, with a drainage of 4,600 acres, and the overflow from the Pont in times when there was more passing down than the mills required.

5330. When did you complete your cut to the Pont?—It was completed in the spring of 1851.

5331. Do you remember at what time exactly?—I do not remember; but it was not completed in time to be of service in the summer of 1851.

5332. (*Mr. Bateman.*) That is to bring flood-water from the Pont?—Just so.

5333. (*Chairman.*) Was it not completed by the 10th of May?—I think it was completed before that time.

5334. About when?—I do not remember the exact date, but I believe it was about the month of March, in the spring.

5335. May we say the middle of March?—I should think it was completed about the middle of March; but I would not like to state positively, because I do not know it.

5336. (*Mr. Bateman.*) At any rate, you found, at the end of March and the beginning of April, 1851, that your old reservoirs were full?—Yes.

5337. And they were again full at the end of the first week in May?—They were; and I am quite sure that that filling was owing to our old works, and not to any supply that we obtained from the north. The new works were not completed in time, as I have said, to be available at that time, to any extent, at least.

5338. (*Chairman.*) Were they completed in the last three weeks of April?—I believe they might be, but I could not positively state that.

5339. My object in asking you these questions is to endeavour to form a notion as to how much of the water, which in ordinary circumstance and years you might have obtained through this cut, ran to waste this year, owing to the non-completion of your cut or new reservoirs. I notice that in the last three weeks of April your old reservoirs were not full, although they were full for the last week in March and the first week in April; and I want you to give us a notion how much of the water, which in any other year you might expect to obtain, ran to waste in 1851, owing to the non-completion of your new works?—I cannot answer that question, because I have no means of ascertaining the amount of water that ran to waste down the Pont. I should state that we found that cut to be of no great value to us in summer, when we most needed it.

5340. At what time is it of most value to you?—It is of most value to us in times of wet, of course; in the spring of the year, if we happen to have a wet spring, or in the summer if we happen to have thunder-showers.

5341. (*Mr. Bateman.*) Heavy floods?—Heavy floods; but it depends entirely upon the season.

5342. (*Chairman.*) I do not myself see, from this diagram, that there was any chance of your having lost any water from the non-completion of your additional reservoir, except between the 21st of March and the 8th or 9th of May 1851?—I think you are arriving at a hasty conclusion there, because it is very possible that before the month of March our old reservoirs were quite full; therefore, if the new reservoir had been completed, we should have been storing in it as well.

5343. Will you be good enough to look at your table or diagram, and tell me at what time between your extreme deficiency of water in October 1850 and the 21st of March 1851 your old reservoirs ever were full?—They were full in March 1851; but they were not full between those two times.

5344. Then my conclusion was not, perhaps, so very hasty when I said that I did not see how you can have lost any water from the non-completion of your new reservoirs, except after the 21st of March?—From the non-completion of our new reservoirs, not until then; but from the non-completion of the other works in connection with the new reservoir, we may have. If our works northwards to the Pont had all been completed in the winter of 1850-51, we certainly should, during that winter, have been enabled to obtain water from the north, which we should have stored in our new reservoir.

5345. Is it the fact, that in the winter of 1851-52, after you had completed all your new works, you were absolutely lower by 35,000,000, than in the winter of 1850-51, when you had not completed them; is that so?—That fact may be so, but I may state another fact: that I know that if our cut had been completed to the Pont in 1850-51, we should have had a great deal more water in our reservoirs at the commencement of 1851 than we actually had; because during that time there were several floods, so much so in fact as to retard our works considerably. I should also beg to impress upon you that if those new works had been completed whilst we had actually a store of 215,000,000 gallons, say in March 1851, we might at that time, instead of having 215,000,000, have had very considerably more. I have no doubt, in fact, that the new reservoir would also have been supplied from the water which we should have obtained during the winter of 1850-51.

5346. (*Mr. Bateman.*) What you mean to say is this, that had you had the advantage of the supply which you expected to derive from the Pont in the course of the winter of 1850-51, and also a reservoir to store it in, you would have had more water in store at the commencement of 1851, than you had under the circumstances?—No doubt of it, a great deal more.

5347. (*Chairman.*) At what time did you complete your reservoir, and therewith entirely complete your new works?—It was completed about the middle of September, 1851. Every possible exertion was used to complete it in time to store water in it for the winter of 1851.

5348. And at the end of 1851, after your new works had been in full operation for three months, you had 35,000,000 gallons less in store than at the end of 1850, before, as I now understand you, any part of your new works had so come into operation?—At the end of 1851, our quantity in store was 110,000,000.

5349. What were the comparative amounts of rain in the last three months of 1850 and of 1851?—There was very little rain in the autumn of 1851. I happen to have got the rain fall here for every week. In the second week of October 1851, there was one-fifth of an inch, the third week in October one-seventh of an inch, the last week in October one-fourth of an inch; the first week in November less than three-fourths of an inch, the second week one-seventh of an inch, the third week one-fourth of an inch, the next week one-fourteenth of an inch, and so on. The next week one-third, the next week one-fiftieth of an inch, the next week one-fourth, the next week one-twentieth, and the two last weeks in the year nothing at all.

5350. (*Mr. Bateman.*) But in the last week of September, and the first week of October 1851, you seem to have had about three inches?—Nearly so; about two inches and three quarters, and you observe that, with that rain, we increase the quantity in our reservoirs, by about 65,000,000 gallons.

5351. (*Chairman.*) What number of inches of rain altogether fell in the last three months of the year 1851?—I have run through it very hastily. I make it a little more than three inches.

5352. (*Mr. Bateman.*) A little more than four, I think you will find it?—Yes; four inches.

5353. (*Chairman.*) And now what amount fell in the last three months of 1850?—I make it six inches and four-tenths.

5354. As compared with a little above four inches in the last three months of the subsequent year?—That is so.

5355. Let us now see what number of inches fell in the first three months of 1851?—I make it six inches, 5·99. I think I am right.

5356. (*Mr. Bateman.*) It is about five inches, I think?—Our week ends on the 22d of April; and including those two days, it is five inches; yes.

5357. (*Chairman.*) Then in the six winter months of 1850-51, there fell altogether 11·4 inches of rain?—Yes.

5358. Now take the same for the six winter months of 1851-52. In the three autumn months of 1851 there fell what?—4·04 inches.

5359. And in the three spring months of 1852?—Three inches and a quarter, making seven inches and a quarter altogether.

5360. Then in the six winter months of 1850-51, you had at least four inches more rain, than you had in the six winter months of 1851-52?—Yes; that is the result of the figures here.

5361. What would four inches of rain on the additional drainage area of 1,000 acres have amounted to?—It is about 90,000,000 gallons; that is from the rain which would fall on the 1,000 acres. But then there is also the overflow of the Pont, which drains 6,100 acres; and during a great portion of the winter months of the year, in ordinary years, there is more water flowing down than the mills require. I mean to state that any calculation which you may arrive at in that way would not exactly represent the real facts of the case.

5362. You cannot compute the amount which you might have got from the Pont, although you can compute the amount which you might have got from your drainage area?—That is so; the minimum may, to some extent, be estimated, but the maximum cannot be.

5363. At the end then of 1851 what was your daily supply, or daily consumption?—In the year 1851 I estimated our daily consumption at nearly 1,700,000 gallons.

5364. (*Mr. Bateman.*) That is the average daily consumption?—Yes, throughout the year. I cannot give an estimate of the consumption of the water at each month of the year; and I mean to state also that those calculations of the consumption are of course approximate calculations only.

5365. (*Chairman.*) And in the spring of 1852?—The average consumption of the year 1852 is about 2,000,000.

5366. But I mean before you extended your pipes and range of supply down the river; did the daily consumption reach anything like 2,000,000 gallons at that time?—It did.

Mr. R. Nicholson and Mr. D. D. Main.

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5367. Is it a fact that in the spring of 1852 you extended your pipes some miles down the river beyond Gateshead to supply Pattinson and Company, Allhusen and Company, Gray and Company, and several other chemical works?—No, that is not a fact; it is a fact that we extended them down that side of the river in the year 1852. I wish to be correct.

(*Mr. Main.*) The supply to Messrs. Pattinson and Company commenced on the 26th of May 1853.

5368. (*Chairman to Mr. Main.*) Allhusen and Company?—Allhusen and Company commenced in November 1853.

5369. Gray and Company?—Gray and Company commenced, I think, about the middle of June 1853. It was understood that the supply to Gray and Company in the first instance was to be for drinking water; but a portion was subsequently run into the ponds. I can give the exact quantity that they used, as the supply to them is by meter.

5370. The first extension of the supply to manufactories down the river then took place about the 26th of May 1853?—That was the first.

5371. Then in the year 1852 there was no extension of the supply at all for the purpose of manufactories down the river?—None whatever; but on the 17th of September 1852 the directors received a memorial to this effect. "To the Directors of "the Whittle Dean Water Company, Newcastle-upon-Tyne. The memorial of the "undersigned inhabitants of Felling and Felling Shore showeth: That the villages of "Felling and Felling Shore contained a population of between 5,000 and 6,000 at the last "census, and since then a considerable number of houses have been erected. That those "villages are very badly supplied with water. That your reservoir at Carr's Hill is "within half a mile of Felling. That it would be a great accommodation to the "inhabitants, and we believe an advantage to your honourable company if you would "extend your works to those villages. We therefore pray that you will take this "memorial into consideration, and cause the necessary steps to be taken for an inquiry "into the subject." Signed by Messrs. Pattinson and Company, and twenty-three of the inhabitants.

(*Mr. Nicholson.*) In consequence of that memorial I went down to examine the locality, and found a great amount of population badly supplied with water. I afterwards received instructions from the company to extend the mains down that side for the purpose of supplying the consumption.

5372. (*Chairman to Mr. Nicholson.*) On the 31st of December 1852, what was your daily consumption?—That I cannot state, for this reason, that during the winter months, in fact during a considerable portion of the year, there is always a great quantity of water brought into our reservoirs at Whittle Dean. We do not estimate the quantity that flows in; we only know the quantity that the reservoir diminishes from week to week; and so I cannot answer that question accurately; but I should say, if you will allow me to give an opinion, because really it is nothing more than an opinion, that inasmuch as our consumption in the average of 1852 was 2,000,000 a day, I should think that at the end of 1852 it would very possibly be two millions and a quarter or two millions and a half; bec use we were increasing our supply throughout the year.

5373. At the end of the year 1852 what was your storage capacity?—330,000,000 gallons.

5374. How many days' storage would that amount to?—At 2,000,000 it would be 165 days.

5375. But at two and a quarter millions it would be less than 150, and at two and a half millions, only 132 days' store?—That may be so.

5376. Then in the spring of 1853 you extended your range of supply down the stream, did you?—We did; I should state that the least quantity that we had in our reservoir at any one time during the year 1852 was 235,000,000, or nearly 240,000,000 gallons, which is 20,000,000 more than the entire capacity of our old reservoirs.

5377. (*Mr. Bateman.*) Than your ancient maximum store?—Than our ancient maximum store.

5378. (*Chairman.*) It was an extraordinary year, was not it?—I do not know that it was an extraordinary year. It happened that in our district we had a considerable fall of rain throughout the summer of 1852.

5379. Was it extraordinary as regards rain fall in your district?—We had more than an average quantity, certainly.

5380. I see in your own tables that in the year 1850 you had 17·6 inches of rain; that in 1851 you had 21·3 inches of rain; that in 1853 again, you had 20·5 inches of rain; but that in this year, 1852, which I alluded to as extraordinary in that respect, you had 34·7 inches of rain, or very nearly double as much as in 1850?—We had. I should state that previously to the construction of our reservoirs, I had no expectation that we should have had so small a quantity of rain in any one year as 17¼ inches; the 21⅓ inches in the year 1851 I also consider a small quantity. According to the returns which we had of the fall of rain at the nearest point to our reservoir, nothing like so small a quantity had fallen for many years previously. I will give you the fall of rain at a point not more than four to five miles from us, at West Denton. In 1845 there were 37¾ inches; in 1846 40¼; in 1847 29¾; in 1848 30½; the smallest quantity being nearly 30 inches.

5381. (*Mr. Bateman.*) Have you the returns from West Denton for the same years for which you have just given us the returns for Whittle Dean?—We have not.

5382. (*Chairman.*) Advancing to the 5th of July 1853, I believe at that time you began to pump water from the Tyne?—We did.

5383. Will you be good enough to state your then daily consumption?—Our then daily consumption was about 2½ millions; but before I proceed further I should mention a fact connected with our works in the spring of 1853, which, in some measure, bears upon the question of pumping. From about May and June 1853, I observed that the quantity of water drawn from our reservoirs was very great indeed, in addition to the quantity which we were receiving from our streams, say 3,000,000 a day. That quantity we knew was brought down to Newcastle, and the water drawn from our reservoirs appeared greater than we could possibly account for by any increase of consumption. We were therefore at a loss to know where it went. We supposed that possibly some large main in the town might have burst over some sewer. We had the sewers of the town examined, and a great deal of time and trouble was expended to ascertain where this waste took place, and at last we discovered that the bottom of our reservoir at Arthur's Hill which had belonged to the late company had given way, arising I believe and I have no reason to doubt it, from some subsidence of the soil, owing to some colliery workings in the immediate vicinity. The waste from that source was, at the very smallest amount, half a million of gallons a day. It is difficult to estimate how long that had continued, as I said before, we not having the means of knowing what quantity came into the reservoirs; but the smallest amount lost certainly was 30,000,000, and I think it is very likely indeed that it may have amounted to 50,000,000 gallons.

5384. (*Mr. Mason.*) What data have you for arriving at the conclusion that there were 30,000,000, if not 50,000,000 of water lost at Arthur's Hill pond?—After we discovered it, by the bye it failed three or four different times, and we had to repair and re-repair it, but after that we found that our consumption was only actually 2½ millions a day, whereas the quantity of water flowing into our reservoir, as I said before, was 3,000,000 a day. Now taking the number of days which I know it extended over, I estimate the minimum quantity at 30,000,000, and I think it very probable that it would be 50,000,000.

5385. For what period of time had this waste been going on?—That I cannot tell.

(*Mr. Main.*) I may also say that the directors and all of us were exceedingly perplexed about it; we had the line of main pipe examined from end to end, and we had all the sewers in the town examined. We watched the consumption at all the large places, and we then came to the conclusion that it must be at Arthur's Hill. I went up with the superintendent, and we went round the pond to see if there was an eddy at any particular place, showing that the water might be escaping. It had given way in previous years there, and we had always discovered it by the eddy. We discovered no eddy, but still we were convinced that it must be there, and during one night we shut off the water entirely; we closed the valve shutting the water into the reservoir, and in the morning twelve inches of water had escaped. We then knew that it must be escaping there, and in the embankment which separates the two reservoirs the leakage had taken place. We took down part of the embankment, and discovered that the water was going wholesale into the colliery. How long it had been going on it is difficult to tell, for this reason, that we had no means of checking our consumption at Whittle Dean, except in very dry weather by observing the quantity from day to day passing out of the reservoir.

5386. (*Chairman.*) What amount of water were you supplying to manufactories between the 1st of May and the end of October 1853; you cannot tell to a gallon, but I mean on the average?—Nearly 3,000,000 per week.

5387. (*To Mr. Nicholson.*) At this time I think you have said that the consumption was altogether about 2,500,000 a day?—Yes.

5388. At which rate you would have a storage of 132 days?—Yes.

5389. (*To Mr. Main.*) And you reckon that you supplied about 500,000 of 2,500,000 gallons per day to manufactories?—Yes; I might say that in the quantity to manufactories I include also the railways and breweries.

5390. Excluding breweries and railways, what water do you think you supplied a week to the manufactories, glass-houses, and so on?—The two railways alone consume about 1,000,000 gallons a week; the Newcastle and Carlisle, and the York, Newcastle, and Berwick Railway.

5391. Then your supply to actual manufactories would be under 2,000,000 a week?—Certainly.

5392. What amount may we assume that you supplied to these manufactories in the twenty-six weeks of the six months between the 1st of May and the end of October?—Not so much as 50,000,000 gallons.

5393. (*Mr. Rayne.*) Had you any complaints from the manufacturers or their engineers about the water?—Not a single complaint in my time, except at the end of September, when we shut off the water from the manufactories during the night; we had complaints then; and I may say also, that somebody was kind enough to send round the town by the bellman to say that the water would be off the manufactories for three days; and the office was literally besieged from morning to night by the manufacturers.

5394. Had you no complaints in August and September that the water choked the boilers?—Not the slightest.

5395. Or that they had to clean the boilers out more frequently?—Not the slightest.

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5396. (*Chairman.*) Up to the 31st of August no complaints were made to you officially by any persons about the water supplied to the manufactories?—Not that I recollect.

5397. (*To Mr. Nicholson.*) How many weeks did you continue to pump from the Tyne?—We commenced on the 5th of July, and we ended on the morning of the 15th of September.

5398. What amount did you altogether pump from the Tyne in those ten or eleven weeks?—50,000,000 of gallons.

5399. (*Mr. Rayne.*) Had you any complaints from the inhabitants during that time of pumping from the Tyne, that the water was bad?—Yes, from individuals.

5400. (*Chairman.*) Had you any previously to the 31st of August?—I do not think that we had many complaints at the office; but in going through the streets I had many complaints.

5401. Previously to the 31st of August?—Yes.

5402. What was the subject of the complaint?—That the water was dirty and discoloured.

5403. Did they merely complain of discolouration?—Nothing further.

(*Mr. Nicholson.*) With reference to that point, I beg to state that the water supplied to the town was alike to all parts. The water from the river is pumped into the main and mixed with the water from Whittle Dean before it arrives at the town; and therefore it is the same throughout all parts of the town. I may also add that it was stated publicly at a meeting, that although we dared not pump from the river during the day we had continued to pump at night, after we had given a pledge that we should not do so. Such a statement is entirely untrue.

5404. (*Mr. Mason.*) Was not the chimney smoking for several days after instructions had been given that water should not be pumped from the river?—It might for some little time, till the fires went out; but we had no men there. We had no work going on.

5405. (*To Mr. Main.*) Did the chimney smoke after orders were given that the Tyne water should not be supplied to the town any more?—I do not think it did.

5406. (*Chairman to Mr. Nicholson.*) As I understand, between the 1st of April and the end of October you lost from 30,000,000 to 50,000,000 gallons by the giving way of your works, you supplied about 50,000,000 to manufactories, and you obtained about 50,000,000 from the Tyne?—That is so.

5407. Supposing, then, no such accident to have happened with the works, and no supply to have been made to those manufactories, you would not have required, probably, to pump from the Tyne?—If no such accident had occurred in our works, and we had continued to supply the manufactories as we did supply them, we even then should not have had occasion to pump from the Tyne, I believe.

5408. (*Mr. Mason.*) Is not the pipe from the works at Elswick into the river three feet in diameter?—There is no pipe from the works at Elswick into the river.

5409. How do you draw the water?—By a culvert.

5410. That is the same thing; what is the diameter?—It is at least that size.

5411. What is the diameter of the pipe from Elswick up to the Arthur's Hill reservoir?—Fourteen inches.

5412. What quantity of water can you pump through that pipe per hour?—I should say that we could pump at the rate, possibly, of about 1,250,000 gallons per day of twenty-four hours, but then a portion of the time is necessarily occupied in pumping the water from the river into the subsiding tanks, and in other things. I have gone as carefully into the calculation as I can, and when I state that the quantity pumped was at the rate of 700,000 gallons a day, it is as nearly as possible the fact. I went myself carefully into the calculation also in the year 1850, day by day, when we were obliged to pump faster than we were in 1853, and the result arrived at at that time was nearly 800,000 gallons per day.

5413. (*Mr. Rayne.*) Mr. Main said that they had indicators for the large manufactories; will he give a statement of the water used at each manufactory where they have an indicator?

5414. (*Chairman to Mr. Main.*) How many manufactories have indicators?—We have only commenced water meters lately.

5415. Had you any in operation previously to the outbreak of cholera in 1853?—Yes.

5416. How many?—We had one at Messrs. Pattinsons, one at Gray and Company's, one at the public baths in Northumberland Street, one at the workhouse, and one at Mr. Joseph Gray's. I believe those are all.

5417. What amount did you supply to Pattinson and Company in those six months?—I might mention that Pattinsons' manufactory is by a very great deal the largest that we have; we have nothing like it; when they came on we expected, indeed they guaranteed, that they would use water to the extent of 200*l.* a year; that was the inducement to us to lay the pipes.

5418. When did they begin to take the water, or to measure it through a meter?—On the 26th of May 1853. Between the 26th of May 1853 and the 5th of July, when we commenced to pump, they had consumed 5,777,187 gallons.

5419. In less than six weeks they had consumed nearly 6,000,000?—Yes.

5420. They consumed, then, nearly 1,000,000 a week?—Very nearly.

5421. Proceed to the next?—The others are very trifling. The workhouse consumed 2000 gallons a day for domestic purposes; Gray and Company, at Friar's Goose, consumed in the same time, up to the 5th of July, 261,000 gallons.

5422. About 50,000 gallons a week?—Yes.

5423. You still adhere to your opinion that all these manufactories put together did not consume quite as much as 2,000,000 a week, railways and breweries being excluded? Certainly.

5424. (*Mr. Bateman.*) Your trade supplies, I suppose in all cases almost, are at so much the thousand gallons?—Yes.

5425. And, therefore, you take the best means you can, as well as the parties to whom you supply the water, for determining what quantity of water is used?—Yes.

5426. Independently of any registration which the water-meter might give you?—I might say that in the case of railways, although we have no meter, the consumption was ascertained in this way. Under Mr. Nicholson's direction, we stationed one of our men there for a fortnight along with one of the railway company's men; they took an accurate account of the water as it was used, and calculated the quantities used at the other places, and the station; that was then considered the average consumption, and the charge was made accordingly.

5427. You believe that there would be no material error either for or against yourselves in the quantity which you have given?—I have gone very carefully into it, and I believe that it is correct.

5428. (*Chairman to Mr. Nicholson.*) Considering that about the middle of the year 1853, your daily consumption had increased to 2,500,000 gallons, while your storage capacity was but 330,000,000, or on the whole, 132 days' supply, do you not think that the supply had been extended to a degree greater than your storage capacity would justify you?—I did not think so at the time.

5429. You did not think that 132 days' store was too small?—Not at the time. I did not expect, even in the summer of 1853, that our supply would have reached 2,500,000 per day; indeed the consumption had not reached 2,500,000 per day of course; as that 2,500,000 necessarily includes the waste and the extra supply.

5430. But would you consider that 132 days' storage was a sufficient storage capacity for water-works on this eastern coast?—It depends entirely upon the extent of district drained.

5431. I see by the prospectus of the company, that they started with a storage capacity for 307 days, or rather better than ten months; that by the time the works came into operation, three years afterwards, they had 215 days, or seven and a half months' storage capacity; and now, when I find that in the middle of 1853 they had so extended their supply as to have only 132 days, or less than four and a half months' storage capacity, I ask your opinion, as an engineer, as to whether the range of supply had not been extended beyond the point which, as an engineer, you would consider safe and proper on this eastern coast?—With reference to the extent of country which we then had, I think that 132 days' storage was not sufficient for all seasons; but I should say that such an extent of storage, if the district from whence it was drawn was greatly increased, would be sufficient. It depends entirely upon the extent of district.

5432. Taking into consideration the extent of district which you actually had, do you not think that the extension of the supply to such a degree as to have a storage capacity for but 132 days' consumption at the utmost, was an extension to such a point as to risk the continuance of that supply?—I did not think so in the year 1853.

(*Mr. Main.*) Besides we expected, during the summer, floods in the river Pont, so as to have swelled the reservoirs from that source. These floods never did occur.

5433. (*Chairman to Mr. Main.*) You expected floods in the year 1853, which you did not obtain?—Yes.

5434. Considering that in the year 1849 you had got down below 100,000,000 gallons in store; that in the year 1850 you had got down as low as 12,000,000; and that in the year 1851 you had got down to about 56,000,000, at particular seasons of the year, what reason had you to expect that you would have any unusual accession of water in 1853?—Because the culvert had not been made in those years to the Pont. In 1852 we had plenty of water, which was the first year the culvert was really in operation in conjunction with the new reservoir.

5435. Did you think that you might look upon the year 1852 as a normal year?—Not exactly. It was exceedingly wet in the autumn; but still in an average year we expected that the Pont would be occasionally flooded, and that we should get the advantage of it.

5436. Was the year 1853 unusually dry?—(*Mr. Nicholson.*) It was unusually dry in this district, certainly.

5437. As compared with the years 1850 and 1851?—It was drier than 1851. I consider that perhaps the year 1850 was the driest year that we had known in that district.

5438. The difference of rain-fall between the year 1850 and the year 1851 was what fraction of an inch?—Three quarters of an inch, rather more.

(*Mr. Main.*) But the difference between 1851 and 1853 was more peculiarly this: that in 1851 the rain came down in September in great quantities; it rained for two days together; whereas in 1853 the rain fell in small quantities at a time, which makes a very great difference.

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5439. (*Mr. Mason.*) The other day, Mr. Main stated that from the middle of August to the end of September, there were continuous freshes in the river; at least I understood him to say so. Allow me to put that question to him, and to ask him how he ascertained that there were freshes in the river at the period referred to?—(*Mr. Main.*) I find that on the 17th of August our superintendant says, that at Whittle Dean there had been rain through the night; and I find that the quantity which fell at that time was one inch and a decimal on that day.

5440. From that do you infer that the Tyne was under fresh?—On that day it would be.

5441. (*Chairman to Mr. Main.*) I understand you to have said, on the occasion to which Mr. Mason alludes, that the whole of the water company were, of course, anxious about the state of the water supply; that you were down almost daily at the river, and at the engine-houses, and that the general impression remaining on your mind was, that there had been several freshes in the river during that time?—Yes. Here is another instance; an inch and a quarter of rain fell.

(*Mr. Mason.*) There was a fresh in the river on the Saturday for a few hours, on that 10th of September, and that was a very slight one.

(*Mr. Main.*) Mr. Mason has stated that there was only one fresh for a few hours. I wish it had been the case, but on the contrary, we had frequent freshes during that time. For two days the river Tyne water was so discoloured that the directors ordered the engine to cease.

(*Mr. Nicholson.*) That I can corroborate on that particular occasion, and at other times also it was so; for I myself have looked at it. I do not mean to say there were floods in the river, but there were freshes which brought down peat at that time.

5442. (*Mr. Bateman.*) Sufficient to discolour the water?—Sufficient to discolour, and very much discolour it. I frequently examined the river Tyne very carefully during the summer, and it was really very good up to a certain time, up to about the beginning of July. From that time there were local falls of rain, which discoloured it very much.

5443. (*Mr. Rayne.*) In the neighbourhood of Elswick, where you took the water from, and where you have examined the water so frequently, have you never seen any dead dogs and other nuisances upon the slake?—I have not. I have never seen one. I should also state this with reference to the taking of the water. I observe that Dr. Thomson's analysis has been produced of the water said to be taken from the Tyne. It is there stated that that water was taken from two to three hours after low water. Now at that time, no doubt, the sewage of the town is flowing upwards past that point.

5444. (*Chairman.*) You object to the reception of this analysis, by Dr. Thomson, of the water taken from the Tyne on the 17th October, owing to the period at which it was taken, namely, two or three hours after low water?—I do.

5445. As being calculated to mislead the Commissioners?—Certainly.

5446. (*Mr. Mason.*) At what period of the day did you commence pumping, and at what period did you give up?—We commenced pumping twice a day, about four to four and a half hours after high water. It took us but two and a half hours, or thereabouts, to pump the water out of the river into our tank for the next twelve hours; we therefore ceased pumping a little before low water, because at this part of the river the water flows from four and a half to five hours only, and it ebbs the remaing seven to seven and a half hours; I find that from tidal observations which I made in 1849. If, therefore, the water had been taken from the river at low water, at the point where we took it from, and under similar circumstances, and had been analysed by Dr. Thomson, I should at once have admitted that as a proper analysis of the water taken out of the Tyne there before being filtered.

5447. (*Mr. Simon.*) Have you any analysis yourself of water obtained under such circumstances?—We have; it will be produced. I may state that in the year 1850, which I have already mentioned, when we pumped from the river, the water was drawn from a tap in the town under precisely similar circumstances, and the analysis will be proved by Dr. Richardson, a chemist here. That is the analysis (*delivering in the same*).

Vide Q. 5945, post

5448. (*Mr. Bateman.*) This is an analysis of water taken from a tap?—Yes.

5449. It is not an analysis of water taken from the river at such periods as you say you pumped the water from the river?—No; it is water taken from the tap.

5450. As supplied to the inhabitants?—Yes.

5451. (*Mr. Mason.*) Was the tide flowing sufficiently to drive any sewage from the town up past the place from whence you took this water, three hours after low water?—Most assuredly. It is the very worst time at which water could possibly be taken out of the river. I speak it as an engineer, and one not unacquainted with it.

5452. (*Mr. Simon.*) Has the company taken any measures to satisfy itself by chemical analysis as to the fitness of the water it was supplying?—Yes; the water has been analysed on several occasions since we commenced supplying the town.

5453. Will you have the kindness to hand in the series of analyses which have been made from time to time —They are more particularly in Mr. Main's charge.

5454. (*Chairman.*) Especially those of the Tyne water?—The only analysis of Tyne water, I believe, will be proved by Dr. Richardson. I hope you quite understand that prior to October 1848, the town was, I may say, entirely supplied with water from the

Tyne, pumped from the same place, under the same circumstances, with the exception of this, that the engine at that time was required to work more quickly than it had to do in 1850 and 1853.

5455. (*Mr. Simon.*) You abandoned that source of supply believing it to be improper?—We abandoned it, considering that our Whittle Dean supply was more fit and proper.

5456. (*Chairman.*) Did not you state in your prospectus that the complaints against the quality of the Tyne water had been universal and loud?—Very likely so. I did not write the prospectus.

5457. (*Mr. Rayne.*) Are you aware that Dr. Headlam and others congratulated the town upon the mildness of the attack of cholera in 1849, and considered that this was the case partly in consequence of the good supply from Whittle Dean?—Very likely. But with reference to the supply to the houses, I may state from my own observation, which may illustrate the matter, that I lived several years in George Street. In the year 1849, I found the water from the cistern bad; it smelt bad, and tasted bad. I was necessarily surprised, knowing well that the water supplied to the town was good. I examined and found that, although the Whittle Dean water was then brought into the cistern, yet into the same cistern some rain water was brought; and in the hot weather that rain water affected the taste and the smell of the Whittle Dean water.

5458. (*Chairman.*) It had been brought into the old cistern without the old cistern having been cleaned out?—Cleaning out would not have altered the matter. If rain water is allowed to remain for a length of time in hot weather, it will smell from the quantity of soot it contains, and I may mention that I then caused the pipe for rain water to be taken away, and used the other water only; and from that time there was no complaint. And in another instance, the complaint brought to us, or rather to the guardians last year, will be proved to have been caused by the same thing, and I am only very sorry that, when this took place and when these complaints were laid before the board of guardians, application was not at once made to the water company, when I do believe that a great portion of them might have been explained.

5459. (*Mr. Bateman.*) Before we go further into the question of the quality of the water and the various complaints which are going to be made against you, will you allow me to ask you a few questions on engineering points?—Certainly.

5460. Your works were completed and the Whittle Dean water brought into Newcastle in October 1848?—Yes.

5461. In 1849 you had plenty of water?—We had.

5462. Probably your demand would not at that period test the capacity of your works?—No, it would not.

5463. And you had no rain-guage in that year?—We had not.

5464. In 1850 your supply failed?—It did.

5465. And you then pumped from the Tyne?—We did.

5466. In that year your rain-fall was 17·68 inches?—Yes.

5467. In 1851 you did not pump from the Tyne?—We did not.

5468. And your rainfall was 21·33 inches?—Yes; our new works not being then brought into operation.

5469. Except that from about March or April you got the additional drainage from 1,000 acres of ground?—Yes.

5470. Your resources were not completed, and you got no useful supply from the Pont till after September in that year?—None.

5471. Then in 1851 we may make a tolerably fair analysis of the quantity of water which was supplied by the district from which you were collecting water?—1851 was the year that we had not the additional reservoir, at least not till the autumn.

5472. You had not the additional reservoir, and you had not the additional water from the Pont; you had the water from the additional 1,000 acres, and you did not draw from the river Tyne so as to disturb the calculation?—Just so.

5473. By your diagram it appears, that from the end of the first week in May to the end of that year, the old reservoirs were never full?—No.

5474. At the end of the first week in May they were full, that is, they stood at 215,000,000 gallons?—Yes.

5475. And at the end of the year at 110,000,000?—Yes.

5476. The loss, therefore, from store in that interval was 105,000,000?—Yes.

5477. The rain in that interval, or from the beginning of May to the end of December rather, was 15·14 inches?—That is so.

5478. In the first week in May the rain was ·88 inch?—Yes.

5479. Deducting that would leave the rainfall during the interval I speak of, as 14¼ inches?—Yes.

5480. You state that your supply was 1,700,000 on the average of 1851?—Yes.

5481. Then from the beginning of May to the end of the year, we should not probably be far off the mark, if we took it at 1,750,000 gallons?—Or from that to 1,800,000.

5482. The period from the end of the first week in May to the end of the year is 238 days?—Yes.

5483. Multiplying that by the daily quantity will give you the amount of water which you supplied during that period?—Yes.

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5484. That amounts to 416,500,000 gallons, towards which you took from store 105,000,000?—Yes.

5485. There would therefore have to be supplied by the drainage of the country 311,500,000?—Quite so.

5486. 4,600 acres you had contributing during that period?—Yes.

5487. 311,000,000 gallons are as nearly as possible 50,000,000 cubic feet?—Quite so.

5488. Dividing the 50,000,000 cubic feet into the number of square feet in 4,600 acres, will give you, I believe, if you work it out, 3 inches of rain-fall?—Available, do you mean?

5489. Which you collected?—Yes.

5490. The whole rain-fall in that period was fourteen and a quarter inches, deduct three inches from that, and you would have a loss of eleven inches and a quarter?—By evaporation.

5491. By evaporation, absorption, and the water which would be taken up to supply vegetation?—Quite so.

5492. During the previous part of that year you would have had seven inches to make up the twenty-one and one-third inches of total rain in 1851?—Yes.

5493. Of that quantity I suppose you could not expect more than four or five inches to be available?—I should say not.

5494. Suppose we take it at five inches available, it would give a loss of two inches?—Yes.

5495. With the eleven and a quarter it would be a total loss of thirteen inches and a quarter in the course of the year?—Just so.

5496. Perhaps you are aware that the loss of rain has been found to be pretty nearly constant, varying from twelve to sixteen inches, according to circumstances?—Yes; I should say from ten to sixteen inches, depending upon the way in which the rain falls.

5497. If you had five of the seven inches of rain-fall in the first four months of the year, and three inches out of the fourteen inches and a quarter which fell in the last eight dry months, there would be altogether eight available inches in the course of that year?—Yes.

5498. In the year preceding you had only seventeen and two-thirds inches of rain?—No more.

5499. If you deduct the same quantity of loss, thirteen inches and a quarter, you could hardly expect to have got available in 1850 more than four inches of rain, could you?—I find that, in 1850, the quantity which escaped by evaporation and other processes was actually eleven inches and a quarter, as nearly as possible. I have gone into the calculation of the quantity which we actually received and passed by.

5500. That would leave you about six inches as the net produce of that year?—The net produce of the year 1850 was six inches and one-third.

5501. I have drawn it out by calculation, that you could hardly have expected more than four or at most five?—We got six and one-third.

5502. Taking the average amount of 1850 and 1851, you would have about seven inches?—A little more than that.

5503. In round numbers seven inches. Take eight inches, however, which is more than would be prudent under those circumstances to calculate upon when you get two years together, the average of which is only seven?—I should say that it would; of course there is a contingency.

5504. At the end of 1851 you had for the two years 1850 and 1851 the actual result before you?—Yes.

5505. Proving that in those two years you got a trifle over seven inches of rain?—Yes.

5506. Eight inches of rain from 4,600 acres would give you, I think, 2,250,000 gallons a day on the average?—Very possibly. I have not gone into it.

5507. Would you like to go into it?—From 4,600 acres, how much would eight inches in the year give you a day upon the average?—I think about 2,300,000.

5508. That was the quantity which you got in 1851?—I should say that in 1851 we got more than that; for this reason, that in 1850, with a rain-fall of seventeen inches and a half we got six inches and a half nearly.

5509. By the calculation which you have already allowed me to take you through, I think it is pretty certain that you could not have got more than eight inches in 1851?—It is not much more. I am speaking from what we actually got in 1850; it is possible we might have got a little more during the first three or four months of the year.

5510. If you take the six inches of 1850, throwing away the fraction, then a rain-fall of six inches on 4,600 acres would give you, of course, one-fourth less than 2,300,000 gallons per day, which in round numbers may be taken at 600,000, that is, supposing you had the 4,600 acres, which you had not?—Which we had not.

5511. But if you had had them, that amount of rain-fall in 1850 would give you 1,700,000 gallons as the average available daily produce of 1850?—Yes. I make the available produce of 1850 actually 1,800,000.

5512. Then the mean of 1,800,000 in 1850, and 2,300,000 in 1851, would be 2,050,000 gallons, would it not?—Yes.

5513. Under those circumstances is it not tolerably clear that you were imprudent in extending your supply even to 2,000,000 gallons of water?—No; because then we had the overflow from the Pont, which was the drainage of 6,100 acres.

5514. But the overflow of the Pont you had never secured in any such way as to enable you to help yourselves out in a dry season?—Excepting by the additional storage.

5515. Would it not have been more prudent, at all events, to have secured the supply from the Pont before you had increased your supply beyond what the district itself would have afforded you?—Certainly we did expect to secure a supply from the Pont as far as possible, but we were unable to do so.

5516. As I understand, the arrangements were such that you could hardly expect to do so, except in case of sudden showers, which in a long drought might not occur?—Throughout the greatest portion of the winter, of course, we had it always available, and also up to a certain time of the spring, and from what we could judge of previous years, the summer scarcely, if ever, passed over without the Pont being flooded once or twice during that time, at which times we took our supply.

5517. Can you tell me what the lowest quantity of your natural supply is?—What do you mean by the "natural supply?"

5518. I mean that which the streams would yield in extreme dry weather, without storage?—Very little; I have not calculated it.

5519. Therefore throughout a long drought we must rely chiefly upon the amount of water which you stored?—Yes; that is from our present drainage. The branch of the Pont, from which we took the supply in the autumn of last year after we ceased pumping, yielded at the lowest point about 5,000,000 gallons a week.

5520. When you were supplying two and a half million gallons of water a day, with a storage capacity of 330,000,000, that would last about 130 days?—Thereabouts.

5521. If you look to your diagram for 1853 I think you will find that your reservoirs went down constantly for about 180 days?—Yes.

5522. And in 1851 there is another descent with scarcely a resting place, for about 150 days?—Not quite so much as that, I think. There are three resting places to no great extent. There are two weeks of resting in the month of August 1851, and in June there is also another week where we have drawn nothing.

5523. But with those exceptions, the duration of drought in 1851 may be taken to have been about 150 days, through a period when the least quantity of water would have been flowing from the collecting ground and the greatest evaporation would have been going on?—Yes, but it is not quite 150 days; it is from the 8th of May. I make the time when we were drawing from there 115 days, I think; 136 days, taking off 21.

5524. The lowest point in 1851 is the end of September?—About the 24th of September.

5525. According to the table before me, it is the very end of September?—Mine is correct, it is the 24th of September.

5526. It commences at the end of the first week in May and goes down regularly to the last week in June, there it stops for a week?—Yes; it commences about the 9th of May, it goes down till about the 18th of June, it then remains stationary for a week.

5527. It then goes down again to the middle of August?—To the middle of August.

5528. It is pretty nearly stationary, a little rising at the end of August?—Yes.

5529. And goes down again till the end of September or a week short?—Yes, I make it 136 days less 21, when it is stationary.

5530. In 1851 the duration of the drought was very much less and the quantity of rain more than it was in 1850?—The quantity of rain was more certainly.

5531. The drought commenced near the end of February in 1850?—Yes.

5532. And continued with very little interruption to the end of September?—Yes.

5533. And during that time you had to help yourself from the river Tyne?—Yes.

5534. Of course you had not in the beginning of 1853 the experience of the year 1853?—No.

5535. But you had the experience of 1850 and 1851?—Yes; and of 1852 also.

5536. But 1852 was really an exceptional year in your case, and would not be a year that you could calculate upon, except your reservoirs were so large as to hold the whole of the water which fell in 1852, so as to store it over for a year of extraordinary drought?—Yes; but in the years 1850 and 1851 we had not the new reservoir completed, and in every year we passed by a considerable quantity of water. Even in 1850 we passed by 109,000,000; in 1851 we passed by 139,000,000.

5537. But that you take into your calculation when you give me the quantity of water, which you calculated you did derive from the 3,600 acres in 1850?—In 1850 I had done so.

5538. You have taken into account the quantity of water which you actually derived?—Quite so.

5539. And that is a fraction more than six inches. Then, in 1851, by the calculations which I have now made, and which are of course equally open to you to make, by means of the diagram, with which you were kind enough to supply me, it appears that the whole quantity of water collected was about eight inches?—I think the eight inches is less than it would be. We had four inches more fall of rain in 1851 than in 1850, and the evaporation being pretty nearly a constant quantity; taking six inches and upwards in 1850, we should add to that six inches the additional fall of rain in 1851.

5540. Can there be any mistake in the calculation which I have made between the first week in May 1851 and the end of that year, during which period your reservoirs were never full?—It may be so; but I assure you that I have gone very particularly into the

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calculation of 1850 of the available quantity; and every one knows the evaporation and the sources of loss are pretty nearly constant, and the fall of rain in 1851 is four inches more than in 1850.

5541. The evaporation varies considerably; it is pretty constant within certain limits?—I see no reason to suppose that the evaporation of 1851 would be more than in 1850.

5542. The evaporation is more with a greater quantity of rain up to a certain limit?—Still we had four inches more rain in 1851 than in 1850.

5543. But from the end of the first week in May to the end of the year, your reservoirs never were full?—They were not full, certainly.

5544. You had an additional thousand acres of drainage in that period?—Not during the spring of the year.

5545. You had from the end of the first week in May to the end of the year?—Yes.

5546. Therefore during that period you had 4,600 acres of collecting ground?—We had.

5547. And you had lost 105,000,000 gallons of store in that period?—Quite so; but we had not the drainage from the north in 1851, until it was too late to be of service to us.

5548. Your supply being from 1,700,000 to 1,800,000 gallons a day?—It may be one or the other.

5549. You must have obtained the difference between the gross quantity supplied, which will amount to upwards of 400,000, and the quantity taken out of store, from what the streams yielded?—Certainly.

5550.—That I find amounts exactly to three inches over the 4,600 acres during that period?—I have not gone into that.

5551. The reservoir never having been full?—No.

5552. The quantity which you actually collected from the streams, and that which you took from store, made up the whole quantity of supply?—Yes; only there is this: I have no doubt, if we look to our books in September 1851, when we had such a large increase in quantity, we shall find that it flowed up so quickly, that we would necessarily pass by a certain amount of that, as we generally do when reservoirs are rising, feeling satisfied that before the winter is through we shall be able to fill them.

5553. It never rose at that time to within 100,000,000 gallons of being full in your own reservoirs?—Just so. I know that we do so sometimes, but I cannot answer that question as to 1851.

5554. I think you will find, if you work the year 1851 through, according to these figures, which your diagram gives me the means of using, and according to the rain which fell, that the utmost quantity of water which you could collect in that year would be eight inches?—I should say a little more. I was going to work 1851 through in the same way as I did in 1850; but owing to not being able to ascertain the quantity which we got from the north and that district, I did not do it, being of opinion that it would not lead to any accurate result.

5555. From the end or the first week in May to the end of the year you had the means of arriving practically at the result?—Yes.

5556. You had the means of ascertaining the quantity of rain which fell in the period from the beginning of the year to the end of the first week in May?—Yes.

5557. And that you find is 7·07 inches?—I dare say it may be so.

5558. Of that you could not hope to expect more than five inches?—I should say not, certainly.

5559. That is rather a liberal allowance?—I think it is a liberal allowance.

5560. Nevertheless, taking five inches as your share of the seven inches which fell in that period, and adding that to the three inches about which there can be no mistake, to the end of the year, it will give you eight inches as the whole available produce of 1851?—Looking at the year 1850 and the fall of rain in other years, I should put the available produce of the year 1851 at about nine inches; not less than nine inches certainly. I am asked the question without going into it, and I am not sure that there might not be some reasons, which would come out on investigation, that would to some extent alter the figures which you have stated.

5561. If we give you the whole of the seven inches, it can only give you ten inches, the three inches being certain?—Quite so.

5562. And allowing some, as we must, for the support of vegetation, and the evaporation, and other losses, I think eight inches would be rather a liberal allowance than otherwise. Having the facts of 1851 before you, and the facts of the preceding year of 1850 before you, two years, if you choose, extraordinarily dry, but which I think is just the difficulty that any engineer has to meet with, namely, the contingency against years of extraordinary drought, and upon which the construction of reservoirs and increased collecting ground are, to a great extent, based, in order to enable him to meet such contingencies, you would hardly be justified in extending your supply without further resources beyond the 2,000,000 gallons of water a day?—In 1853 we did not expect that the consumption would be so much as two and a half millions a day.

5563. If it had exceeded 2,000,000, could you have supplied it?—We could have supplied the two and a half millions in 1853, but for this misfortune of our reservoir. I have no hesitation in saying so. I say that, with the fall of rain of twenty and a half inches, in 1853, we could have and should have supplied two and a half millions a day, but for the leakage in the Arthur's Hill reservoir.

5564. I will admit that, with the quantity of water which you had in store at the commencement of 1853, and a fall of rain of twenty and a half inches, you could have supplied two and a half millions of water through that year, I mean taking the accidental circumstances of an extraordinary year of wet in 1852 into consideration; but if 1853 and 1854 were to come together, as 1850 and 1851 did, could you then continue to supply the two and a half millions of water through 1854?—At the end of 1853, notwithstanding the dryness of the year, and notwithstanding that we had to supply two and a half millions a day, we ended 1853 with a storage of 320,000,000. Our reservoirs were full, in fact, at the end of the year, notwithstanding the supply of two and a half millions a day, and we rejected very large quantities indeed; that is to say, with the fall of rain, in 1853, of twenty and a half inches, we actually did supply, because I put the leakage against the quantity pumped, two and a half million gallons per day. We did not draw from our reservoirs, and we passed by 380,000,000 gallons. That is the broad fact; it is a curious thing, but so it is. In 1853 we supplied two and a half millions of gallons per day without drawing upon our reservoirs, and we passed by 380,000,000 gallons.

(*Chairman.*) It will be but poor comfort, I imagine, to those who fancied themselves half poisoned by having to drink the 50,000,000 of bad water which, at one period of the year, you pumped from the Tyne, to hear that, at some other period of the year, you let 380,000,000 of good water run to waste.

5565. (*Mr. Bateman.*) Have you worked out the quantity of water which you obtained out of the twenty and a half inches rain fall in 1853?—We cannot, because of the overflow from the Pont, which there is no means of calculating. We had the drainage of the Pont in 1853, and but for the drainage of the Pont, I do not think we should have been justified in extending our works.

5566. When you had got the drainage of the Pont, you had the drainage of 6,000 acres extra?—Yes; but we only had the 6,000 acres for a very short time. We did not get the drainage of the Pont until the time we ceased pumping from the river.

5567. Thirteenth of September?—Quite so; we had not commenced taking it from there until then.

5568. But you would not have been justified in giving up pumping from the Tyne, unless you had taken the Pont at that time?—No, we should not; but the Pont only yielded 700,000 gallons a day.

5569. Notwithstanding the assistance which the Pont gave, your reservoirs still continued to descend till the end of the first week in October?—Yes, if we had not had the Pont, we should have had to continue pumping till about the first week of October, if not longer.

5570. The rain falling upon your own 4,600 acres of ground would have then supplied your demand, and have gone towards the filling of the reservoirs?—With the overflow of the Pont. The overflow of the Pont, that we were entitled to, would have supplied us amply from the first week of October; because I observe now that in one week, that is to say, in the week commencing about the 6th of October, we increased our storage by 75,000,000 of gallons.

5571. Then I think it comes to this, that without the overflow from the Pont, and with merely 4,600 acres of collecting ground, and with 330,000,000 gallons in store, you would not have been justified in supplying more than 2,000,000 of gallons of water a day?—I do not think we should, without the overflow from the Pont.

5572. What gave you confidence as to the supply of 2,500,000 gallons, was the belief of a supply, and I dare say of a large supply, from the overflow of the Pont?—We knew to a certainty that we should have a large supply; but the amount of supply of course we could not tell.

(*Mr. Main.*) I might also mention, as bearing upon that point, that the additional consumers, whom we have taken on during the present year, would not have warranted us in assuming that the consumption would be 2,500,000 gallons. There are 200,000 gallons per week, which we can only attribute to the increased business in manufactures; the demand for water this year has been more than usual.

5573. Do you mean that, judging of the progress which you have made in the past, taking the water used and the customers that you have got, you were not warranted in expecting so large a demand as 2,500,000 gallons per day?—Quite so; the additional customers that we have taken on this year are not more than we have taken on every year since we have commenced. The additional number of inhabitants that we have taken on year by year has been 7,000; this year we have not taken on more; the manufactories which we have taken on are supplied by meter, and therefore I have been enabled to calculate the quantity very accurately; and there are 200,000 gallons per week which we are not able to account for, except by supposing that the business of the town has increased very considerably this year. The manufactories have been working very frequently day and night.

5574. (*Chairman to Mr. Nicholson.*) I am not quite sure that I understood you aright, as to the number of days drought that you have experienced in the different years. For how many days in 1849 did the water pretty continuously go down in your reservoirs,

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so as to suggest to one, on looking at this diagram, the idea of a drought?—In 1849 it commenced to go down about the 23d of May, and it ceased going down on the 14th of August, that is, about eighty days.

5575. Eighty-three or eighty-four days?—I see now that it is to the end of August.

5576. That would be exactly one hundred days of continuous drought, or of weather in which you were continuously drawing down your reservoirs?—Yes.

5577. In 1850 it began to go down when?—About the 21st of February, going down a little until the middle of April; then it rose for a week.

5578. There were fifty-two or fifty-three days at that time; then it rose for how many days?—It rose for one week.

5579. We will exclude that; when did it again commence to fall?—At the end of that week.

5580. What day was that?—About the 26th of April.

5581. How long did it continue to go down?—It continued to about the 26th of July.

5582. That would be ninety-one days' descent?—Yes, thereabouts.

5583. Then did it again go down?—It did.

5584. From what period?—At the end of another week.

5585 That would be the 1st of August?—About the 2d of August.

5586. And it continued going down to the end of September?—It continued going down till about the 10th of October.

5587. That would be about sixty-nine days. Then there were 212 days of continuous descent of water in the reservoir in that year?—Not of continuous descent; it represents 212 days of descent.

5588. Broken by two intervals of a week each?—Yes. I have not added those figures up, but I take for granted that you are correct.

5589. We have taken the dates correctly, at all events, so that the number of days can be reckoned up, if I am wrong. In 1851 it began to go down in May?—About the 9th of May.

5590. And it continued going down till when?—Till the 19th of June.

5591. That would be forty-one days. Then there came a break. When did it again begin to go down?—At the end of a week it began to descend on the 26th of June.

5592. How long did it then continue to descend?—To the 14th of August.

5593. That would be about fifty days. Then there came another break?—Yes, of fourteen days, till the 28th of August.

5594. And on the 28th of August it began to descend again?—Yes.

5595. It descended how long?—It descended until the 24th of September.

5596. Twenty-seven days. Would that be 118 days in all, with two breaks, one of a week and another of a fortnight?—Very likely it would.

5597. Then in 1852 you had no drought at all?—It descended in 1852, I believe, occasionally.

5598. A little. In June it rose high. It was high all July and August, and in September it rose very rapidly; so that, altogether, the year was high?—You must, of course, bear in mind that the year 1852 was the first year that we had the overflow from the Pont; and I wish particularly to notice that at the commencement of 1852, or in the autumn rather of 1851, we did, very materially we consider, increase our powers, first by the additional reservoir, and that that additional reservoir was of use is shown by the quantity of water which in every year we passed by, previously and subsequently to that. And of course the overflow from the Pont, being an overflow of an extent of 6,000 acres, also shows the extent to which it is of use.

5599. I have no hesitation in stating to you the way in which the case shapes itself to my mind. We have had no evidence whatsoever to show that your Whittle Dean water is not good ordinarily, so that it seems to me that the question of the quality of the water in 1853 was dependent wholly upon the quantity of it. It seems to me that if you had always had a sufficient quantity in your reservoirs, if you had never got down, so to say, to the dregs of your reservoirs, and never had had occasion to pump from the Tyne, there never would have been any complaint whatsoever as to the quality of your water. Therefore it seems to me that the quality of the Whittle Dean water was mainly dependent upon the quantity you retained in store. Then I want to ascertain your deliberate opinion upon this point, viz., whether, having in the year 1849 had experience of 100 days of drought or continuous drawing on your reservoirs, in 1850 of 212 days of drought, and in 1851 of 118 days of drought, you were warranted and justified in extending your supply beyond about 2,000,000 a day, when even at that rate of supply you had but storage capacity for 165 days, supposing, which is very unlikely, that your reservoirs should have happened to be quite full at the commencement of the annual drought?—The result, of course, of the year 1853 has shown that we should have had barely sufficient; but if we had had the whole water of the Pont throughout the entire year of 1853, notwithstanding all the leakage which took place at Arthur's Hill, and if that leakage had even been a great deal more than it was, we should have had ample, and more than ample, for 1853, according to the best estimate I can form.

5600. You were aware, at the time when you continued to extend your supply beyond the amount of 2,000,000 a day, that you had no right to, and could not get possession of, the whole water of the Pont?—We were; but, having before us the experience of the year 1852, when the smallest quantity of storage was so exceedingly great, and our consumption being then 2,000,000, we certainly did not consider that we ought to be at all afraid of extending our works so far as we did in 1853. If we had entertained such an idea, we no doubt should not have thought of extending our works.

5601. Am I to understand you to say that it was on the experience of the exceptional very wet year 1852, as overruling the experience of the three previous years 1849, 1850, and 1851 that you felt justified in extending your supply beyond 2,000,000 a day, at a time when you had only a storage capacity of 330,000,000 gallons, or 165 days' supply at that unincreased rate?—I do not say that quite, because we had not the experience in 1849, 1850, and 1851 of our additional reservoir or of the quantity to be obtained from the Pont. If we had had the experience of those two additional supplies in those three years, we might then have been able to form a more correct calculation.

5602. I mean having the experience of the years 1849, 1850, and 1851 in respect of periods of drought of 100 days, 212 days, and 118 days respectively?—We had the experience of those years no doubt in that respect, but we had not the overflow of the Pont in those times.

5603. (*Mr. Bateman.*) It is the fact of the Pont which has misled you?—It is the Pont which has to some extent misled us; we expected in every year during the summer on different occasions to have received some very large supplies from there; and we have not received them to the extent which we expected.

5604. (*Chairman.*) That is the point on which you would rely for your exculpation?—And also the consumption of 1853 being more than we had any reason to calculate upon, and also the loss which we sustained by this extraordinary leakage. If we had not had this defect in our works at Newcastle, I consider that we should have had no occasion to pump at all, or very little at any rate.

5605. A miscalculation as to the amount of water obtainable from the Pont, a miscalculation as to the amount of consumption owing to the increased number of tenants taken, and the accident of from 30,000,000 to 50,000,000 having been lost by leakage, are the points on which you would wish to insist?—I do generally. I do not call it a miscalculation, because it is perhaps scarcely a correct word.

5606. A misapprehension then perhaps?—Yes.

5607. (*Mr. Bateman.*) To put it in milder terms your anticipations of supply from the Pont were not realized?—Not to the full extent.

5608. And the consumption of water exceeded what you had reason to expect?—Yes, from the increased number of our tenants, that is the fact. But notwithstanding any miscalculation from the Pont, and notwithstanding the increased consumption beyond what we had reason to anticipate, even then we should have had sufficient without this failure.

5609. (*Chairman to Mr. Nicholson.*) I believe at the beginning of October last year you got as low as 35,000,000 gallons in your reservoirs?—Yes.

5610. Suppose you add to that the amount which you lost by leakage, and which you computed at certainly 30,000,000, and perhaps 50,000,000 gallons, and deduct therefrom, shall we say the 50,000,000 gallons which you pumped from the Tyne, you would still on the higher computation for the leakage have been as low as 35,000,000, and on the lower computation as low as 15,000,000 gallons?—Precisely so.

5611. Would the water derivable from reservoirs intended to contain as much as 330,000,000 have been desirable as drinking water when those reservoirs were so reduced as to contain only 35,000,000 gallons or even less?—For a few days it would have been clouded in the way that it was clouded, but not to the same extent.

5612. You do not think that there would have been anything seriously objectionable in water drawn from the reservoirs when as low as that?—Not certainly, excepting in the particular that I have mentioned.

(*Mr. Main.*) The reservoir, from which alone we drew at that time, had a depth of water, at the lowest point, of 18 feet 9 inches.

5613. (*Mr. Rayne.*) From July to September was the water at any time clear during the time that you were taking it from the Tyne?—I should state as to its being clear, that it might not be perfectly pellucid, but it was certainly frequently approaching it.

5614. Had it never a bad smell?—Never.

5615. I believe you are not accustomed to drink the water?—I state, what you know perfectly well, that the house I live in is at a little distance from the town, and that the water pipes are not laid there.

5616. You lived in George Street; did you drink the water there?—I had a spring there. I did occasionally drink the water from the Whittle Dean in George Street, as it happened to be taken either from the tap or from the well. I fancied sometimes that the water from the Whittle Dean was better than from the well. I am quite certain the servants took it from where they pleased, and that I several times drank it.

5617. (*Mr. Bateman.*) With reference to the discolouration, you stated that you filtered all the water which was pumped from the Tyne?—We did.

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5618. You examined very probably the water after it was so filtered?—I did; I filled a glass from the well after the filtration.

5619. After being filtered was there any appearance of matters in suspension, or was it discolouration from peat which rendered the water less pellucid?—From peat.

5620. Can you from your own knowledge state that the water at all times, after being pumped from the Tyne, and after being passed through the filters, was without any other discoloration except that?—I believe entirely so, unless for a short time on one or two occasions, when the wind was high at Whittle Dean.

5621. You are sure of that?—I am.

5622. Then the turbidness which has been spoken of frequently could not arise from that source?—I think not.

5623. As we must therefore look for some other cause, is it likely that it could arise from the wind lashing the water against the sides of the reservoir at Whittle Dean?—Yes, I think it would to some extent; but we have the means of taking it from a small reservoir, and avoiding that as much as possible. We have the means of taking it into that small reservoir from any one of the others; we are not compelled to take it from the large one; and if the wind is in a certain direction, we can take it from one or the other as the case may be, or we can take it from the stream.

5624. Do you know that occasionally, from the disturbance of the water, or from the necessity of drawing some of your several reservoirs low, the water was discoloured?—Not discoloured, but clouded; you may call it turbid; I call discolouration that arising from the river; I distinguish the two.

5625. Then cloudiness and turbidness, matters being held in suspension, would arise from the turbidness of your Whittle Dean reservoir?—The matters held in suspension would.

5626. The colour, so far as a brown tinge was imparted to it, would arise from the water taken from the Tyne?—Yes.

5627. And the compound would be what many of these gentlemen say did exist in Newcastle, a brown turbid water?—I do not mean to impute anything improper to those gentlemen, but I do think this, that what I have heard of greatly exceeds anything which I ever saw.

5628. You think that not only the water but the description is highly coloured?—I do really think it, judging from my own experience. I know that many parties think the water comes direct from the river without being filtered; and I think if it had been in the state described I could not but have seen it.

5629. Have you the means of taking the water direct from the river without filtration?—We have not.

5630. Can you take the water from the river without passing it through the filters?—We cannot.

5631. Is it, therefore, a matter of necessity that all the water supplied from Elswick must have passed through the filters?—Yes.

5632. How often do those filters require cleaning?—About once a week.

5633. During that period was the supply from the Tyne suspended?—Yes.

5634. How long did that last?—Twelve, or fifteen, or eighteen hours, depending upon circumstances.

5635. And during those periods no water was pumped from the Tyne?—Not into the town. We took the opportunity of pumping it into the tank. There are two subsiding tanks. We first pumped it into one and allowed it to subside, and then into the other. The water was drawn from those tanks into the filter alternately.

5636. (*Chairman.*) Did you, as engineer to the company, think it your duty, daily or frequently to draw water from the pipes, both at the company's office, and at your own office in the town, to see in what condition it was?—I will not say daily at my own office, but certainly daily at the company's office, with very few exceptions.

5637. Upon none of those occasions did you observe anything beyond discolouration, such as in your judgment might be attributed to the peat stain, or the slight turbidity from the clay from the reservoirs?—Certainly. I state so most distinctly.

5638. You never smelt anything disagreeable?—Never.

5639. You never tasted anything which would give you the notion of putridity?—Certainly not.

5640. (*Mr. Simon.*) Had your filter a disagreeable smell?—I never went for the purpose of smelling it, and cannot answer the question; but I never heard such a thing stated.

5641. (*To Mr. Main.*) Can you inform us upon that point?—I smelt the water at the office daily, and never smelt it offensive.

5642. (*Mr. Rayne.*) Did you draw water from the tap in the day and let it stand all night?—Yes.

(*Mr. Nicholson.*) Frequently; and I have had two or three samples there standing; and on one of those occasions, owing to the water being so brown, we ordered the men to cease pumping for two days.

5643. (*Mr. Simon.*) On those occasions did the water which you let stand deposit a sediment?—To a very small extent, I believe, occasionally.

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5644. (*Mr. Rayne.*) Are you aware that that water was taken, at one of the meetings of the board of guardians, before the guardians?—I am very sorry that it was not brought before us, and that we had not the opportunity of examining into it; because on another occasion, when the water was complained of by a highly respectable physician of this town, it was found to arise entirely from his own cistern.

(*Mr. Main.*) I will give you the full particulars of that. Dr. Embleton of this town, I think, in his evidence stated, that the water in his house was muddy and left a sediment. Now I met Dr. Embleton in the street one day, and he was talking about the water. This was on the 18th of November, when we had the supply entirely from Whittle Dean. He said, "Well, you say that the water is good now, but I never have it good at my house." He said, "I have it in my water jugs during the day; it leaves a sediment, and it also "smells." I said, "It is most extraordinary, and I will go up and see it myself." I said, "If you have it bad, all your neighbours will have it bad too, because your house is "in the centre of the street." I will give you a copy of the letter that I sent to him that day, showing the result of the examination: "Newcastle, November 18th, 1853. Dear "Sir,—I have examined your water fittings this morning, and am not surprised that you "never have the water good. The two cisterns in the yard are in some parts decayed, "and the water gets contaminated in passing through them into the kitchen. If you "examine them you will find pieces of rotten wood and a good deal of dirt and soot at the "bottom. As there is really no necessity for having these cisterns, the water being "constantly on, day and night, I would suggest that you should do away with them "altogether, and have a simple tap in the yard, allowing the pipe communicating with "the kitchen to remain as at present. By this means you will always have the water "fresh and good." Dr. Embleton has since informed me that he adopted my suggestion. Those cisterns had been in use many years, having been rendered necessary by the intermittent supply of the former company; he had probably never looked at them, and they had continued many years till the wood was perfectly rotten and decayed. He has since done away with them, and the water, he has told me, has since been good.

(*Mr. Nicholson.*) The same thing has occurred at my own house. I believe that if, instead of that water being taken to the board of guardians and the town put into that state of alarm, we had been applied to, we should have been able to remedy to a very great extent the complaints; I have no doubt of it.

5645. (*Mr. Simon to Mr. Rayne.*) Have you a cistern?—I have not; I took the water from a tap not connected with any cistern.

5646. (*Mr. Main.*) Have you not a water-closet in your house?—Yes, but I do not take the water from the water-closet.

5647. Are you certain that the tap was not supplied from the cistern which supplies your water-closet; because that is the usual case?—No, it is not; it is a pipe from the main in the yard. I saw it put in myself.

(*Mr. Main.*) I wish also to state that on the 14th of November, Dr. Richardson wrote this letter to me. It appears that he had been analysing the water. "Dear Sir,—An "average sample of last week's supply of your water to the town contains in the imperial "gallon carbonates of lime and magnesia, precipitated by boiling, 13·60 grains; sulphate "of lime with chlorides of magnesia, calcium, and alkalies, 17·60 grains; organic matter "4·00;" making the total solid contents in the gallon 35·20 grains. He says, "The "organic matter is chiefly of animal origin, and emits a most offensive smell when "ignited." I was exceedingly alarmed by this; I believed that Dr. Richardson had made a mistake in analysing the water, because at that time we were drawing our entire supply from Whittle Dean. I went immediately to Dr. Richardson, and asked him about this organic matter, and the large quantity of solid matter in the gallon. I said it was impossible the water could be contaminated by animal matter, as it was entirely drawn from Whittle Dean; and I asked him where he had taken it. He said he had drawn it from the tap which supplies the New Medical Hall. I went along and examined the cistern there. It is a lead cistern, and I could observe nothing particular about it, if the water had come from there. I then took Dr. Richardson to a tap in the same street, where it was drawn directly from the main pipe, without the intervention of any cistern and his analysis at that time, on the 14th of December 1853, of the water supplied to the town was as follows:—"Carbonate of lime 6·88; sulphate of lime 3·36; sulphates "and muriates of alkalies and earth 6·40; organic matter 2·24; and only ·07 of a "grain of matter in suspension." Dr. Richardson added, "I consider the water of "excellent quality, and well adapted for the supply of the inhabitants." I merely wish to show that any analysis of the water that may be produced ought to be derived from a tap supplied direct from the main pipe; not from any cistern.

5648. (*Mr. Simon.*) As regards that first specimen of water, containing so much animal matter, were you able to find any explanation of its contamination?—I climbed up to the lead cistern; it was an exceedingly dirty place, with nothing to protect the surface of the water from being contaminated. It seemed to have a yellow coating inside the lead cistern.

5649. (*Mr. Bateman to Mr. Rayne.*) With reference to the occasion, to which you referred, when you took the water from a tap and had an unpleasant feeling after it, is that tap in the constant habit of being used?—Constantly.

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5650. There could be no contamination from the tap from want of use?—Not the least; and I forgot to mention when I gave the evidence to you, that there was a man who had not been in the town drinking the water but three days, and he was taken ill of cholera.

(*Mr. Nicholson.*) I can bring forward many cases where people never drank the water, and were taken ill also. In my own case, where we had not the water, two of our servants fancied they were ill; I attributed it to fancy, and told them what nonsense it was to fancy they were ill, and I gave them a little medicine. They blamed the water, and believed they were ill of cholera. With reference to water producing diarrhœa, you will bear in mind what has been proved before you in the case of Messrs. Stephensons' workmen, although they fancied that the water gave them diarrhœa; you will recollect that the amount of cases of diarrhœa in the barracks was much greater, if I remember rightly, than at the works of Messrs. Stephenson and Company; and as to the cases of cholera, I would merely refer to two or three places, Greenhow Terrace, Spital Tongues, and other places, where our water pipes do not extend; and the cases of cholera there were certainly much beyond the average.

(*Mr. Rayne.*) The water at the barracks is bad; the water at Spital Tongues is bad also.

(*Mr. Mason.*) The water at Spital Tongues contains 75·03 grains per gallon of solid matter.

5651. (*Chairman.*) By whom was that analysis made?—By Dr. Richardson.

(*Mr. Main.*) They have two sources of supply at Spital Tongues. I understand the people at Spital Tongues use the stream water passing by their houses for ordinary domestic purposes, but the water of a well for drinking.

5652. (*Mr. Mason to Mr. Nicholson.*) Were the company frequently warned anterior to the year 1849, that they were sure to be in the condition that they have proved themselves to be in, both in 1850 and in this year; and was there not suggested to them, at the period which I am alluding to, the propriety of their embracing the river Pont; because any person who would have taken the trouble to have gone up to have seen the small streamlet that was running into those ponds, which were taken to supply the town, would easily have found at once that it was impossible to be at all adequate?—I have heard that, and Mr. Mason, I dare say, said something to the same effect; but at the same time Mr. Mason also forewarned us that our revenue would never reach 7,000*l.* a year, and now it is double that amount.

5653. (*Chairman to Mr. Nicholson.*) I think you have stated that the area of your filter was about 10,000 feet?—Yes.

5654. What amount of water would a filter of that area, and such as you describe, filter properly in the twenty-four hours?—It depends entirely upon many circumstances; I should say that the rate at which we filtered the water supplied to the Newcastle people in the average of the twenty-four hours, was about seventy gallons per foot per hour; but for the time it was actually in operation, it was from eighty-five to ninety-five gallons per hour.

5655. (*Mr. Bateman.*) How many hours did you pass the water through the filter?—From seventeen to eighteen hours.

5656. Then there would be no difficulty in filtering the quantity of water you state during that time?—None whatever; much larger quantities are filtered daily.

5657. (*Chairman.*) You think that the filter and the filtering worked adequately?—I do.

5658. How many inches vertical do you take it that that filter would filter in the hour?—I did not take it in that way, but the calculation I have given you is correct. I took it gallons per hour, in the usual way. I think it is about ninety gallons per square foot per hour.

5659. (*Mr. Bateman.*) That is about fifteen cubic feet?—Yes, not quite so much.

5660. (*Chairman.*) How many gallons did you filter in these eighteen hours?—In the eighteen hours, I have stated that we filtered 700,000 gallons. Mr. Bateman will be able to tell you at once, that the quantity passed through in that space is not more than can be adequately and properly filtered.

(*Mr. Bateman.*) I will not state that. I have no doubt that you may pass that quantity through, but it depends on the quality of the water previously to being filtered, as to whether it can be done adequately and properly.

5661. (*Chairman.*) We will take the exact dimensions of the area of your filter?—I have not it by me. I had it measured and had the exact area of the filter.

5662. You were not, I suppose, generally in attendance on the engine?—No; I had a book kept showing when the engine was at work.

5663. (*Mr. Simon.*) Can you put in a transcript of that book?—I think I can give it you for every day. It states the time when we commenced pumping to the town, the intervals between one period and the other, when the engine was being oiled, and so forth; but that is not so correct as it ought to have been. We know that there is always an interval, but it gives you pretty nearly the time.

5664. (*Chairman.*) From whom are we to get accurate information with reference to the exact time of the pumping from the Tyne?—You can have it from the engineman.

5665. (*Mr. Bateman.*) Did your engine pump constantly, except just at the time of changing from one class of work to the other?—Just so, except the time of oiling, and those two days which I have mentioned.

5666. Did you pump every tide from the river?—Generally so.

5667. That would be 5 hours of the 24; about 2½ hours a tide?—About 2½ to 2¾ hours.

5668. That in two tides would be 5 hours in the 24?—Yes; or a little more than that.

5669. You say you pumped from the filter into the town 18 hours?—No, I said 17.

5670. 17 and 5 would make 22?—22½ perhaps, and there is an hour and a half for other things.

5671. You know that to be the fact?—I do.

5672. (*Mr. Simon.*) Do you believe that no water was ever drawn from the river after the turn of the tide?—I believe that none ever was. Of course I was not always at the river side, but I have no doubt of the accuracy of what I have stated to you.

5673. Is it a probable thing that any carelessness on the part of the person in charge of the works in your absence could have allowed pumping to occur at other times than you directed?—I do not think it at all probable. I have the size of the filter bed exactly here; it is 124 feet 2 inches by 80 feet. I have had it since measured again.

5674. (*Chairman.*) It is within a trifle of 10,000 square feet then?—Yes.

5675. I notice that in the year 1850 you did not begin to pump from the Tyne until you had got as low as 55,000,000 on the 22d of July; is that correct?—That is correct.

5676. And that on the 5th of July 1853, you began to pump from the Tyne before you had got as low as 150,000,000?—Yes.

5677. Can you explain to us the reason of that?—Yes. In 1850 our consumption was 1,500,000 gallons a day. We knew of course what our pumping powers were, and how long we could depend upon the quantity in store with our pumping powers to supply the town. In 1853, our consumption being more, it was necessary to begin earlier, because the pumping quantity being a constant quantity, we had to draw more largely from the storage.

5678. In 1850 you began to pump when you had 36 days' store left in your reservoirs?—Yes, about that.

5679. And in 1853 you began to pump when you had sixty days' store left?—Yes; I considered that a necessary precaution to take in the year 1853, and I do not think that we began earlier in 1853, as compared with our real state of things, than we did in 1850.

5680. Taking into consideration that the available supply from the river is constant, do you think that the sixty days in 1853 corresponded to the thirty-six in 1850?—I think that the cases are much about alike. I should state that the water in the river during the early part of the summer was exceedingly good. I mean along the Tyne generally; it was very free from stain, and as bright and pure as could be. After we had had occasion to pump a short time, there happened to be frequent local falls of rain, just sufficient to bring the water over the peat surface, and the river was occasionally very much discoloured, so much so, as I said before, that we ceased pumping two days.

5681. (*Mr. Simon.*) Was the water from your reservoirs also much discoloured?—No; no peat water runs into our reservoirs.

5682. Was there considerable sediment there?—During a certain portion of the time there was a cloudiness in the water which necessarily, after standing some time, would leave a sediment. The water before had been so perfectly bright and colourless, and so perfectly good, that I believe the change was therefore seen sooner. If the water had been supplied to Newcastle before as it is generally supplied to North Shields, there would not have been so much said of the change.

5683. (*Dr. Robinson to Mr. Main.*) I wish to ask you the names or situations of the pants supplied by the water company during the epidemic of cholera in 1853?—Two pants in Sandgate; one at each end; a pant in Manor Chare, and one at Butcher Bank.

5684. Those are the only pants supplied by you?—Those are the only public pants.

5685. Are there any additional pants now partly or wholly supplied by the company; I allude to the pants in Newgate Street?—No.

5686. Are the pants, which are supplied by the water company, in charge of the water company or the corporation?—The corporation.

5687. The company are not responsible for the condition of the water in the pants?—Not at all; we get a certain rent from the corporation for those pants.

5688. (*To Mr. Nicholson.*) With reference to the possibility of soakage into the pipes of the water company, under what circumstances is it liable to occur, and where to your knowledge has it occurred?—I should fancy that there would be no soakage into the pipes, when we have so great a pressure in the pipes; there may be an escape of water outwards. If the pipe was empty and a vacuum was formed, and the pipe was not water-tight then there might be soakage.

5689. Have you any wooden pipes?—(*Mr. Main.*)—No.

(*Mr. Nicholson.*) There were some old ones about Eldon Square, but I believe they have all been removed. Of course we are not perfectly acquainted with the exact description of pipes, because some of them have been down for a very long time; but I believe they have all been taken out.

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5690. With reference to the reservoirs in the town, there are two, I believe?—There are two at what we call Arthur's Hill.

5691. Is not there one also close to the pumping engine?—That is only used when the engine is at work. There are two subsiding tanks, and a filter bed.

5692. Are these reservoirs covered?—They are not.

5693. At what distance are these reservoirs from inhabited houses or public roads?—At Arthur's Hill—it is in fact one, because the two are formed into one—there is a public road on one side of it.

5694. Is it near houses?—It is.

5695. Is it possible for dead animals or other noxious substances to be thrown into those reservoirs, so as to make the water foul, which may before have been pure?—We have a man who lives upon the premises at Arthur's Hill constantly; he occupies a house on the grounds, and I do not think that anything of that kind could possibly be thrown in there. It is also surrounded by a very high wall. After we came into possession of the works we found that the wall was too low. We subsequently raised the wall several feet, and it is almost impossible for any one to get over the wall, though I have seen a person climb over it.

5696. Would it be possible to throw anything over it?—I do not think such a thing would happen. I never heard of it.

5697. As a general rule would it not be desirable for reservoirs to be erected at a distance from the town, or covered so as to prevent the possibility of such a thing being done?—Not to prevent a possibility of that kind. I think it is better for the reservoirs to be at a distance from inhabited houses, on account of the amount of smoke.

5698. Have these reservoirs been cleaned out lately?—No, there is no occasion to clean them out. I speak of the Arthur's Hill reservoirs now, because nothing but pure water comes into them; but the other reservoirs at the engine are cleaned out regularly after the subsidence takes place.

5699. You would not know that any particularly offensive matters had been discovered at any time in these reservoirs?—No, I am not aware of any; in fact I do not believe it. I never heard of such a thing.

5700. With reference to the circumstances under which the water is liable to be cut off from tenemented houses, after the water has once been laid on, has it often been found necessary to cut it off?—We have had considerable difficulty on that point.

(*Mr. Main.*) In answer to that I might state that, when the Whittle Dean water company commenced, the poor people in the town had not a supply of water on the premises at all; they were supplied from the public stand pipes or pants which the subscription company had erected. There were thirty-four of those pants distributed throughout the town; and it is stated in the prospectus of the Whittle Dean water company, "As a measure of general benefit to the population of Newcastle and Gateshead, "and more especially to the working classes of those towns, it has the strongest claims "for support on the part of the inhabitants. It is an undertaking which will have the "effect of relieving the hard-worked families of the poor from the labour of carrying "from a distance the water which they use, and giving them an unlimited supply in "their own houses at no greater charge for an entire day's consumption than is now paid "for a single bucket full of water, sold at the stand pipes in the streets, from which it "has to be carried home frequently during inclement weather, and often with much "inconvenience and fatigue."

5701. (*Dr. Robinson.*) That is the very point upon which I wish to have some information; because I am told by some poor persons that the company have not accomplished that object?—When the Whittle Dean water company commenced in 1845, the occupiers of tenements, consisting of but one room, had no indoor supply of water at all, and the lowest charge at that time was ten shillings per annum. The lowest charge in the Whittle Dean Water Company's Act is seven shillings per annum; but we considered that that charge was too high for the very lowest class, and reduced it to five shillings per annum. We also agreed with landlords, where eight or more tenants had access to one common tap, that we would be at the expense of not only furnishing the branch pipe, but all the interior fittings. The consequence of this measure is, that at this time we supply 28,750 of the population occupying one room, 15,570 occupying two rooms, 1,835 occupying three rooms, and 310 occupying four rooms. The company were anxious that the supply of water should be thus extended to the poorer classes; but in adopting the principle of putting stand pipes in open court yards, and often in public streets to supply these properties, which have sometimes no yards, it has been found that there is a great deal of stealing from the taps, and also great waste of water. When Mr. Rawlinson was here, he strongly urged upon us the necessity of putting the taps inside, into each room. We do not consider that we can do that practically; we find that the landlords are averse to any expenditure almost, for the supplying of their tenants with water, and therefore as the next best means, we have been endeavouring to arrange with the landlords to get them to put the taps inside the properties, at all events into the yard so as to prevent stealing and waste as much as possible. Some landlords have complied; some have not. In the cases of those who have not complied, and who have the stand pipes in the streets perfectly exposed, we have been obliged to take it off.

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5702. So that practically the poor persons, who were for a length of time supplied by the water company, are now obliged to have recourse to the pants?—In a few instances.

(*Mr. Nicholson.*) It was with very great regret that the company were obliged to do that; but when we found that there was no means of preventing the extraordinary waste and breakage, and that the landlords would not be at the expense or become responsible for the rates, we had no alternative in a few cases but to take it off.

5703. With reference to the relations of the company and the corporation, when the supply from the Whittle Dean reservoirs failed in 1850, did the corporation of Newcastle address any remonstrance to the directors of the water company, or urge upon them the necessity for increasing their means of supply?—I do not know.

(*Mr. Main.*) I can answer that they did not.

5704. Did the town council, in the interval between 1850 and September 1853, remonstrate with the directors of the water company on the impropriety of their undertaking to supply additional districts and extensive manufactories, without at the same time proportionately increasing their reservoirs?—(*Mr. Nicholson.*) There was no communication, if you mean that.

5705. After the company began to pump water from the Tyne in July 1853, what interval elapsed before the town council addressed any representation or remonstrance to the directors upon the subject?—(*Mr. Main.*) A deputation consisting of the sanitary committee of the town council attended at the office. It was on the very day that we had ceased pumping, on the 15th of September.

5706. (*Mr. Bateman to Mr. Nicholson.*) Are you now applying to Parliament for a considerable extension of your works?—We are.

5707. Have the directors at any time shown a disposition to withhold necessary outlay for putting the works into a condition fit to meet the requirements of the town?—Certainly never; in every communication or instruction that I have ever received from them the question of money has never been considered by them; their desire has been to efficiently supply the town at all times with water.

5708. So far as their knowledge went and their foresight could extend, you have reason to say that they have always been not only inclined, but have given instructions, for the expenditure of every necessary sum of money to put the works in good condition?—I can state so, most certainly.

5709. (*Chairman.*) Have you any further statement which you wish to make?—There is one thing which just occurs to me. I know it was stated at one time, that the water taken down the north side of the river at Walker was not good; it might be so, but the reasons are these; the main down to Walker was a new main, laid down and completed just about the time that the cholera commenced, and every one knows that, for some time after a new main of that extent is laid down, the interior of the pipe oxydises, and a certain quantity carried down becomes a yellow colour. It is also well known that when the pipe is first filled with water, there is an amount of atmospheric air necessarily in the pipe mixed with the water; and the appearance of the water, described so graphically in one of the communications which I saw in print, was owing entirely to the atmospheric air in the pipe, and to the quantity of iron which had washed off the pipe.

5710. (*Mr. Simon.*) So that it looked yellow?—Yes; and when the water was first brought from Whittle Dean, it was so for a little time; and with every new pipe we lay down, it is so for some little time; and we occasionally, upon making extensions in the town, have complaints at the office. What I did was this: I gave notice at Walker that the water would not be good for a little time; and we do not generally charge them the first quarter.

5711. (*Mr. Bateman.*) Perhaps it would be desirable for you to know, that that objection, which has hitherto been a very serious objection, may now be entirely obviated; and that in my practice I can supply, the first day the water goes through the pipe after it has been washed out, water as pure as at the fountain head?—I have heard several means stated. I do not know what means you use.

5712. We dip them in coal-pitch at a great heat?—If we had done that I am afraid we should have had complaints from the taste of the pitch. I know there was a complaint with respect to our pipes at Walker, and the reason I have given. I also know that in making extensions in the town, complaints of that kind have occasionally been made. I do believe that in some of those instances, where samples of the water were taken and carried to the board of guardians, it may very possibly have arisen from some new pipe, and be accounted for in that way. I do not for a moment suppose that any gentleman would go there and state what was untrue; but I certainly regret that we had not an opportunity of inquiring into it at the time.

(*Mr. Nicholson.*) I do not know that it falls exactly within your province here, but if it does, I shall be glad to state to you what the intentions of the company are during the present session, and what new works are proposed.

5713. (*Chairman.*) We shall be glad to hear it in outline. It will, at all events, be satisfactory to those present?—We propose bringing in a great additional district of drainage, amounting, with what we have, to about forty square miles, and we propose making two large additional reservoirs which will hold about 300,000,000 of gallons.

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5714. (*Mr. Bateman.*) The new ones?—The new ones. We also propose constructing filter beds a little distance from the town, on the Elswick estate, so that all the water, whether brought down from Whittle Dean or elsewhere, will be filtered. These are the main works that we propose. We have taken down the engine at Elswick; we are about re-erecting it several miles up the river, beyond the point where the tide flows; not for the purpose of permanently using it, we expect, but for the purpose of having it ready in the spring of this year or next year before our new works can be completed, in case by any mischance, or any extreme season we should be short of supply. Therefore, as I said before, there has been no question with the company as to the expense of works, because the cost of re-erecting the engine, and of the works there will necessarily be considerable, and it will be for a temporary purpose only; but we have considered it necessary to provide against such a contingency for the next year or two.

5715. (*Chairman.*) Then I understand you to say that instead of having as hitherto a drainage area of 4,600 acres, you propose to obtain a drainage area of 24,600?—Yes, about 20,000 extra.

5716. You propose to increase your storage capacity from 330,000,000 to 630,000,000 gallons?—In round numbers.

5717. You propose to establish increased and improved filter beds?—Entirely new filter beds.

5718. And to carry your engine to a point above the flow of the tide, in case of your having to use it before completing your new works?—Quite so. The district from whence we intend to obtain the new water is very favourable for the purpose; and we have every reason to know, short of actual proof, that the rain fall in that district is very much greater indeed than that of Whittle Dean: the rain gauges are now being put down, and measurements are now being taken, and every information which can be obtained I believe is now in the course of preparation. We are erecting two new rain gauges in the district; in fact they are erected now, I may say. If anything else arises, I shall be very glad to supply the information to the Commissioners.

5719. (*To Mr. Main.*) Will you be good enough to tell us what were the number of families or tenants, in Newcastle only I mean, excluding those in Gateshead, who in August 1853 took your water; and first as regards occupiers of self-contained dwelling-houses whose rental is above 10*l.*?—The occupiers of self-contained dwelling-houses above 10*l.* rental supplied in August 1853 were 2,693.

5720. And under that?—Under 10*l.* there were 625.

5721. Making in the whole 3,318 self-contained houses supplied by you with water?—Yes.

5722. With reference to tenemented property, how many tenants occupying but one room each did you supply at the same date?—5,750.

5723. Tenants of two rooms?—3,114.

5724. Of three rooms?—367.

5725. And of four rooms?—62.

5726. Making in the whole 9,293 tenants of tenemented property supplied by you?—Yes.

5727. Altogether then, what with occupiers of self-contained houses and occupiers of tenements consisting of from one to four rooms each, you supply 12,611 different tenants or families?—We supply 12,611.

5728. Have you formed any estimate as to how many more you do not, but might supply?—I think 5,000 more; that includes out districts to which the pipes have recently been laid, and also some to which the pipes are not laid; it also includes the population round about the public pants who have access to the company's water.

5729. That would give a population of about 88,000, reckoning five to a family?—Yes; the population by the last census was 89,000.

5730. Then within the limits of the Parliamentary borough in August 1853, there must have been at least as many as 5,000 families not supplied with water by you?—Not having an in-door supply of water.

5731. By you?—Yes.

5732. They may have wells, and springs, and so on?—And they may be supplied with the company's water from the public pants.

5733. Do you know how many of these 12,611 people that you supply are supplied with water by taps inside their houses?—The total number of water taps in Newcastle is 6,908.

5734. Inside and outside?—Yes. Of these the number of taps supplying manufactories, tanneries, breweries, public houses, offices, shops, churches, chapels, and public institutions, is 1,030. The number of taps inside the premises for the supply of self-contained houses and tenemented property is 5,694. The number of outside taps also for the supply of tenemented property is 184.

5735. How many tenants or families are supplied by the 184 outside taps?—2,169 are supplied from outside taps.

5736. Deducting then these 2,169 tenants from the total number 12,611, and these 184 outside taps from the total number 6,908, you have 10,442 tenants supplied by 6,724 inside taps; a result clearly showing that many of these 6,724 taps, although inside the houses containing the tenements, must be outside the tenements themselves occupied by the tenants?—No doubt of it.

5737. Can you form an estimate among the 5,000 families whom you do not supply, how many are supplied by wells or springs?—I have no idea.

5738. Have you any idea how many may be supplied by the public pants?—I can hardly form an accurate idea. In Sandgate, which is one of the places chiefly supplied from public pants, I think we supply nearly 1,000 people.

5739. How many do you think obtain their supply from the public pants there?—There must be 4,000 people in Sandgate and the neighbourhood supplied from the public pants.

5740. We have had evidence to show that the whole population of Sandgate is only about 4,700. How many taps are there in the whole district of Sandgate, between the New Road and the quay?—There are a good many. The corporation property is very well supplied with taps.

5741. How many are there?—The corporation have six or seven.

5742. And in the other property?—There are about fifty stand pipes altogether.

5743. Then would you think it a fair computation that 700 people out of the 4,700 are supplied by these fifty stand pipes, and that the remaining 4,000 have no resource but the public pants?—More than 700. I was taking the population of Sandgate at about 5,000. I was rather over the mark, perhaps. I think we supply between 900 and 1,000 people in Sandgate.

5744. Supposing we were to say that one-fifth of the population in Sandgate were supplied by stand pipes, in their own houses or courts, and that four-fifths had to derive their supplies from the public pants at either end, would that, in your judgment, be a correct statement?—I think it would.

5745. I think you said that there were four public pants in Newcastle supplied by you?—Supplied by the company.

5746. And 1,166 water-closets?—Yes.

5747. Can you estimate in how many houses those 1,166 water-closets are to be found?—I think that the number of houses will very nearly correspond with the number of water-closets.

5748. Are there not many instances of two water-closets in a house in this borough?—There may be, but we have only counted one; we only charge for one water-closet.

5749. Then we may take the 1,166 as representing at least 1,100 houses?—Yes.

5750. (*Mr. Simon.*) Do you believe that there are many water-closets in the town supplied by rain water, or from other sources than your pipes?—Yes; there are still a good many houses supplied from cisterns on the top of the houses by rain water, even very good houses. There are houses, I know, in Eldon Square supplied in that way.

5751. Can you form any estimate of the number of such houses?—No, I cannot.

5752. Do you think there are 300 houses so supplied in the town?—I think that would be the outside.

5753. (*Chairman.*) If we were to say that there were altogether 1,500 houses in this borough having water supplied to water-closets, that would be an outside statement?—As far as I can tell.

5754. (*Mr. Simon.*) Are you able to inform us whether it is a frequent arrangement in the houses which have water-closets for there likewise to be a privy unsupplied with water?—I believe it is so in some cases, that the inhabitants of the house use the water-closet and the servants use the privy.

5755. Can you tell us in how many of your 1,166 cases there are a plurality of water-closets in the house?—There are houses in Grainger Street and in Grey Street where there may be two water-closets or more.

5756. Have you notes upon that subject, so as to be able to speak of it accurately?—I am afraid I could not. I only go by the entry in the book, where we charge for a water-closet; we make it a rule not to charge for more than one water-closet in a house.

5757. (*Mr. Bateman.*) In the table which you have given of the number of taps inside the premises; what do you mean by premises?—I mean inside the yard. The outside taps are only those which are exposed in the open court yard, where there is no door, or in the open street.

5758. Of the number, of which you speak as inside the premises, is there a large or a small proportion which are actually inside the houses?—There is a very small proportion of them only inside the houses; most of them are in the yards. I would mention that in Grainger Street, Grey Street, Market Street, Nuns Street, Nelson Street, Clayton Street West, Hood Street, Shakspeare Street, and Leazes Terrace, water-closets prevail.

5759. (*Mr. Simon.*) They prevail as belonging to the entire establishment?—Yes.

5760. If there are two privies in the house they are both supplied with water?—Yes.

5761. You have looked into the question of the cholera mortality, have you not?—Yes.

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5762. Have those streets, which you have just mentioned, held a good or a bad place in the cholera list?—I think they have held a good place.

5763. Do you recollect any one of those streets, which has suffered considerably from cholera?—I do not.

5764. (*Chairman.*) Now with reference to the ordinary character and quality of your Whittle Dean water; we have had some analyses, more or less satisfactory, of the water taken from the Tyne, but as yet we have had none of the ordinary Whittle Dean water. Have you any such to offer us?—I will put in this analysis by Mr. Herapath.

5765. Mr. Herapath's is dated the 28th of November 1853?—Yes.

Bristol, November 28th, 1853.

D. D. Main, Esq., Whittle Dean Water Company's Office, Newcastle.

Sir,—Before I give the results of the analysis of your sample of water, I must state that no chemist *can* filter a small quantity of water in the same way as you do a large one, through sand and gravel. Our filters are white bibulous paper, and will perform the same as yours do, after a long current of water has passed through them.

I find the hardness of your water is 15·1 degrees of Clarke's scale.

In an imperial gallon there are, in grains and decimal parts, as below; the first column being before, the second after filtration:—

	Before Filtering.	After Filtering.
Sulphate of magnesia	1·503	1·503
Common salt	·953	·953
Organic matters ("extractive")	·611	·611
Ammoniacal salts	·011	·011
Nitrates	traces	traces
Sulphate of lime	1·801	1·790
Carbonate of lime	12·320	12·308
Oxide of iron and alumina	·246	·220
Organic matters bituminous	·820	·807
Silica, &c.	·586	·505
Total grains	18·851	18·718

The sediment remaining on the filter is nearly 1-8th of a grain, and composed of—

	Grains.
Sulphate of lime	·011
Carbonate of lime	·012
Oxide of iron and alumina	·026
Bituminous matters	·013
Silica, &c.	·071
	0·133

I do not know what objects you have in view in requiring an analysis of this water, but as it is for a supply of a town, presume you wish to know whether it has been contaminated or not by animal emanations. I therefore direct your attention to the absence of nitrates, and the very small quantity of ammoniacal salts, (about the 90th part of a grain in a gallon,) showing that animal matters have not made their way into it. The 6-10ths grain of extractive would lead us to imagine its source to be vegetable; and the small trace of bitumen, 1-80th of a grain, would lead me to suppose its origin was in the coal measures. I am, Sir, yours respectfully,

WILLIAM HERAPATH.

(*Mr. Nicholson.*) Perhaps it is as well that you should know that although that analysis, I dare say, is quite correct, yet it was taken at a time when it will exhibit a greater hardness in the water than the average quality; because it was taken when our supply was chiefly from the springs.

5766. Chiefly from spring water, with not much rain water mixed with that?—Scarcely any rain.

5767. (*To Mr. Main.*) Is there anything else upon which you would wish to observe?—I would merely say that the Whittle Dean company, when they were first established, adopted the system of constant supply, which formerly had not been in existence here; that great advantage has been experienced by the elevation at which the water is supplied in the town, in the extinguishing of fires. In the Act of Parliament of the Whittle Dean company, they are required to allow persons to take water to extinguish

fires, but if the company were merely to comply with the letter of their Act, many fires would not be extinguished until great damage had been done. The rule, however, is, that as soon as a fire takes place, a notice is sent to the company's men; they go and draw a plug, attach a stand pipe, and allow the water to play upon the flames without any intervention of the fire engine.

5768. (*Mr. Simon.*) What height does it play?—(*Mr. Nicholson.*) I can state that we have thrown water to the top of the Grey monument; that will give you some notion

(*Mr. Main.*) I should also say on this point, as to the extinguishing of fires, that the old system of putting out fires by the fire engine is very much superseded, on account of the great pressure at which we are able to obtain the water. The company, as soon as they know of a fire, send the men to concentrate the water round about the fire, by shutting off the supply to the other parts; and the turncock's services are rendered gratuitously. I may add that the number of people who had a supply from the water works on the 1st of August 1845 was 7875. On the 1st of August 1853, the population supplied was 63,055.

5769. (*Chairman.*) And the consumption nearly four-fold what it had been eight years before?—Yes; I think these are all the points with reference to the system and the quality of the water that I would wish to bring before the Commission, unless the Commissioners think that there is any truth in the statements which have been made by certain of the doctors in the town, that the water has poisoned the inhabitants.

5770. We have not had evidence exactly to that effect, but a great many gentlemen have stated that it was very bad to look at, and several have certainly stated that it was unfit for drinking; others that it smelt badly, and others that it tasted badly, while a few have said that they thought they could directly trace to a certain extent that bad effects had resulted from the use of it. I think some have said that it had made them sick, or given them or others diarrhœa to their own knowledge and belief, and so on?—If the Commissioners attach any importance to those statements, I would wish to go into the question; not otherwise.

5771. I do not see how you can prove a negative, but we are willing to listen. We cannot of course but be impressed, to a certain extent, by the fact that gentlemen on their oaths have declared that the water stank at times, and so on?—I think that the evidence of the medical gentlemen of the town, with the exception of those gentlemen who are called the memorialists, is perfectly fair and unobjectionable. They have stated that the water was turbid and discoloured; it is only in reference to the statements of those other gentlemen that I would wish to make any observations.

(*Mr. Nicholson.*) There has been mention made by one or two as to the state of the atmosphere at that time. With submission I should say that I think scarcely enough has been said upon that point. There is no one certainly who was in Newcastle at the time but must remember the state of that atmosphere, and the myriads of what are commonly called cholera flies. There was not the slightest breath of wind; there was a perfect stagnation for days together of the atmosphere, and the whole district appeared to be in an unwholesome state, exceeding anything that I remember to have witnessed previously.

5772. (*To Mr. Main.*) We have had direct evidence from several gentlemen that they themselves never knew the water to stink; I hardly see what more you can expect to prove in that respect?—The statements in the newspapers were what I more particularly alluded to. For instance, there is the following statement:—"The Whittle Dean "reservoirs have been nearly empty during the greater part of the summer, and the "inhabitants of Newcastle have been poisoned with the water of the Tyne, the receptacle "of the sewers of the town, and of every kind of deleterious refuse and liquid from the "chemical and other manufactories which cover the banks of the Tyne, and which, even "though drawn out at low water, is not only disagreeable to the taste, but, on the "evidence of Mr. Grainger on Wednesday night, 'unfit for domestic use, and must be "'injurious, and a predisposing and aggravating cause of the epidemic.' Those few "localities where spring water has been available have escaped, while the inhabitants "of others who had nothing but Whittle Dean water have fallen like sheep in the "immediate vicinity."

(*Mr. Simon.*) We know that the cholera statistics do not bear out that last statement?—Certainly they do not.

5773. (*Chairman.*) Do you know of any circumstances which should render it possible that the water should be worse in one part of the town than in another?—I do not.

(*Mr. Nicholson.*) Nor do I.

5774. (*Mr. Simon to Mr. Main.*) There has been very strong evidence given before us as to the fact of the water having on certain occasions had an unpleasant smell and an unpleasant taste, such as it might probably have derived from putrid matters. You have explained some such cases by alluding to the state of the cisterns; but there have been some cases before us to which that explanation would certainly not seem to apply?—I can only attribute it to the filthy cisterns.

5775. (*Chairman.*) Mr. Nicholson has stated that he, if not daily at all events habitually, drew it from the stand pipe or from the tap at the company's office, and at his own office, and that he never knew it to stink, nor ever tasted anything objectionable

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in it, and you do the same?—We used it in my own house all the time; we had no other water; it never stank, and we had no cases of cholera or diarrhœa.

(*Mr. Simon.*) Other gentlemen again have stated that, particularly in a large volume, as for instance in a bath, it stank decidedly.

5776. (*Chairman.*) It seemed to me that in those cases the discrepancy between the testimonies might be owing to local causes affecting the supply of the water in different localities?—(*Mr. Nicholson.*) The water throughout the entire town is in communication.

5777. (*Mr. Simon.*) There would be no local differences?—No.

5778. (*Chairman.*) Except what Mr. Main has alluded to, cisterns?—Quite so. Although we have valves to enable us to shut off the water when we require it, still those valves are open and the water is always in communication everywhere.

5779. (*Mr Simon.*) I think it would be satisfactory to you and also to us, if you would put in the evidence of your steam engine man as to the times during which he worked the pump.

(*Mr. Main.*) Yes, we can do that.

(*Mr. Nicholson.*) I can put in his book if you like. One of the pumpers is dead; the head man unfortunately died.

5780. (*Chairman.*) We want, so to say, the under-man; the man who is cognizant of the exact minutes of beginning to pump, and ceasing to pump, and so on?—The engine man, who was really the man, is dead; he died about a month ago, I think; but there is another man who I believe will be able to give you information, Miller.

5781. (*Mr. Simon.*) It is of course a very important matter whether upon any occasion pumping was continued after the turn of the tide?—(*Mr. Main.*) We shall be able to show you satisfactorily that it never was.

5782. (*Chairman.*) You will produce such evidence as may well be obtainable upon that subject to morrow?—Yes.

5783. (*Mr. Simon.*) Are you cognizant of any filth passing into the stream at any short distance above the point at which you drew?—No.

(*Mr. Nicholson.*) I should state also, which is rather an important feature, that the basin of the Tyne itself comprises an extent of 1,100 square miles.

5784. (*Chairman.*) The water borne by the Tyne is a volume derivable from a drainage area of 1,100 square miles?—Yes.

5785. (*Mr. Bateman.*) About 700,000 acres?—Yes.

5786. (*Chairman to Mr. Main.*) Then you have nothing further to offer?—Nothing further excepting the facts which I have gone into as to the mortality; showing that the water did not influence the mortality.

5787. We shall be happy to hear the short result of your inquiries, especially if you will go into it further in detail, and ascertain more carefully, through the registrars, the whole mortality in Grainger Street, Nuns' Street, Market Street, West Clayton Street, and so on?—I have specially excluded those streets from any analysis, because I thought you might consider them picked streets.

5788. So they were, no doubt, but still they had the cholera and Whittle Dean water there?—They were all supplied with Whittle Dean water, and I believe disease was exceedingly light in those streets.

5789. Can you undertake in concert with the local registrar to ascertain those facts?—I will endeavour to do so; if he is willing to furnish me with the information I will go into it.

5790. (*Mr. Simon.*) Would your books at the same time enable you to inform us as to the number of water-closets?—I will endeavour to ascertain that.

5791. (*Chairman.*) It would have a very important bearing, of course, if you could show what you hint at, namely, that Whittle Dean water and water-closet supply were generally co-existent with a very light mortality?—I think I shall be able to show that.

5792. (*Mr. Bateman.*) I have just been glancing over my notes, and I find that Dr. Headlam, Dr. Humble, Mr. Gibb, Mr. Newton, Mr. Sang, Sir John Fife even, Mr. Rayne, and many other gentlemen all agree that the water was bad, bad in different ways; and some say there was a bad smell positively. I take it that during the time of the cholera, at its outbreak at all events, about two-thirds of the water would be obtained from Whittle Dean and one-third from the Tyne?—Yes.

5793. I dare say that during the period when the water was so low, you have been frequently at Whittle Dean?—I was just once there.

5794. Was there during that period much vegetation about the reservoirs?—None at all; the men there are constantly employed in keeping it clean; there are two men.

5795. If two men are constantly employed in keeping it clean, they must have something to do probably?—Very little; they never allow the vegetation to increase.

(*Mr. Nicholson.*) There is no vegetation whatever below the penning of any of the reservoirs; but the vegetation which they keep clean is on the penning; it comes up through the penning.

5796. When the reservoirs are full, at the margin of the reservoirs some amount of vegetation will take place?—(*Mr. Main.*) Yes.

(*Mr. Nicholson.*) Not from the bottom of the reservoirs.

5797. But round the margin of each reservoir I apprehend vegetation will take place?—Above the penning and upon the penning.

5798. As the vegetation decays there will probably be some amount of animalculæ in existence there?—It is carefully taken off; the grass growing is carefully cut down, the weeds are pulled up and they are taken off.

5799. From your observation, can you or not give a positive opinion as to the character of the water in the reservoirs when it gets very low?—I have no doubt it is equally pure save at the time I have mentioned, when it is made muddy by agitation of the wind, as I have described; but certainly no vegetation can effect it.

5800. Is there anything like stagnation in the reservoirs, are they ever when so low in such a condition that the wind cannot get at them so as to agitate the water?—The very fact that the wind does blow over them causes a disturbance of the water.

5801. But when the wind is not blowing, would the water be so unruffled as to become in a measure stagnant?—Certainly not that part from which we draw the water. It is possible that some portions high up, when it is low, might be to some extent stagnant, but not where we take it from.

5802. Having seen the reservoirs, I know that there is no timber upon them?—No timber, and no leaves can get into the water.

5803. It is difficult to account for the positive assurance of everybody that the water was not good, and for the equally positive assurance of many that the water was unpleasant to the smell?—I have no hesitation in saying that, comparing it with the water both before and since, it was not good; but that it stank I most certainly cannot admit.

5804. (*Chairman.*) So far as your knowledge goes?—So far as my knowledge goes, I admit that the water might be drawn from the taps in various places, which might stink under certain circumstances; but not when taken direct from us.

5805. (*Mr. Bateman.*) You have no filters at Whittle Dean?—No.

5806. Have you any strainer of fine quality?—Yes, a very fine wire gauze.

5807. How many strands to the inch?—I think forty-five.

5808. Copper wire?—Copper wire.

5809. A very large surface?—Yes.

5810. Through which the water passes before passing into the pipes?—Yes.

5811. Sufficiently effectual to prevent any vegetation being carried into the pipes?—Yes, certainly.

5812. Are you aware whether a plant called chara vulgaris, or chara flexilis grows upon the margin of the water at all, where it is received into the reservoirs?—I do not know the plant which you speak of, but there is surprisingly little vegetation around it; and in fact none, with the exception of that which comes from the openings of the penning.

5813. You may possibly have heard of a case at Dundee, where the water had a strong fishy flavour when drawn from the pipes, the reason of which was endeavoured to be discovered, and it was attributed to the plant I have named?—I have not heard of it.

5814. (*Chairman to Mr. Main.*) I think I now understand the bearing of the table you recently handed in, and will put one or two questions to you. In the year 1839 I find there was a mortality of 30·7 per mille; did Newcastle, in that year, obtain its supply of water from the Tyne?—Yes.

5815. In 1841 there was a mortality of 29·2 per mille; and Newcastle got its water from the Tyne also?—Yes.

5816. In 1846 the mortality was 36·2 per mille; and it then also got its water from the Tyne?—Yes.

5817. In 1847 the mortality was 32·8 per mille; and then also it got its water from the Tyne?—Yes.

5818. In 1849, when Newcastle did not get its water from the Tyne, the mortality was still as high as 29·1 per mille?—Yes.

5819. In 1850 again when it did get, for some time, its water from the Tyne, there was a mortality of 23·8 per mille only?—Which was below the average considerably, and that was a year in which we used the river water for three months in a larger proportion than we used it this last year.

5820. In 1852 again the mortality was 29·7 per mille; did you then get any water from the Tyne?—Not any.

5821. In 1853 it was 43·3, and you then, for ten weeks, got water from the Tyne?—Yes.

5822. Therefore, what I understand you to wish to say is that the rates of mortality have not been strictly proportionate to the use or disuse of Tyne water?—That is the point which I wish to mention.

5823. You draw our attention to that fact, that there is no exact ratio between the use of Tyne water and the increase of the rates of mortality?—Yes.

(*Mr. Nicholson.*) I also wish to draw your attention to another fact with reference to North Shields, which is this: that, whereas, during the previous epidemic there was a great mortality, between that time and the present they have not, to any appreciable extent, altered the water supply, and yet, during the present time, they have almost entirely escaped. I have no doubt that if you inquired thoroughly into the water supplied to North Shields, you would find its quality at all times very bad, and worse than at the very worst times when we took the water from the river. And with refer-

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ence to the colour of the water from the Tyne, I was going to make this other observation, that Darlington, Stockton, and Middlesborough are supplied with water pumped from the Tees; and that the water in the Tees is certainly coloured more highly than the water in the Tyne was coloured. I have seen at Darlington particularly water exceedingly highly coloured, almost like sherry, more so certainly than ever it appeared in Newcastle; and that, with the exception of wells, is the usual supply to those towns.

(*Mr. Main.*) The next point to which I would wish to direct the attention of the Commissioners is, that many people were alarmed by the statements which appeared in the newspapers, respecting the quality of the company's water, and that they then took to drinking spring water. I understand that the spring water in the town has been analysed by Dr. Richardson, and, if it is possible, I should like that the analyses of the water of those different springs should be placed against those of the Whittle Dean water.

5824. (*Chairman.*) Certainly. Have you those analyses here?—I have not got them; I have not indeed seen them, but Dr. Richardson has them. I understand they are very unfavourable.

5825. Will he be able to produce them?—(*Mr. Nicholson.*) He was in the room the other day, waiting to give his evidence, I know. We have no connection with Dr. Richardson; he is quite an independent chemist. I only happened to see him in the room.

5826. (*Mr. Bateman.*) You mean us to infer that had they continued drinking your water they might have been better off than they were after taking the spring water?—I do not know. I think myself that the water had no influence one way or the other.

5827. (*Chairman.*) Is there any other point?—I was told that several of the wells, at the particular time when the cholera was raging in the town, were very impure, which at other times were remarkably good. There is a well in the Shades which is remarkable for the coolness of its water, and its bright sparkling appearance. I was informed at the time, that in September the water of that well smelt like rotten eggs. I think the atmosphere at that time was in a very peculiar state. I know that along the Jesmond Road there was a field of turnips which smelt so very offensively that the inhabitants believed there had been something improper placed there.

5828. You are aware of the habitual stinking of turnip fields from mildew disease?—Yes.

(*Mr. Nicholson.*) It was not the smell from a turnip field in the usual state, but a stench. I passed it every morning and night. This was stinking, I am afraid, from the turnips being rotten themselves. Not only did it smell badly, but the parties complained. There was such a smell from that turnip field as I never smelt from a turnip field before, and I have been accustomed to be within turnip fields for the whole of my life.

5829. (*Mr. Simon to Mr. Main.*) On the occasion when you went to the reservoir, was its store of water at its lowest?—No.

5830. We should be very glad if we could get evidence upon the point whether, when it got to its low level, there was any smell?—I can bring the superintendent down.

5831. It has been so very positively stated that the water under circumstances, not as far as we can judge suspicious at first sight, had an unpleasant smell, that we should be very glad to get all the evidence we can on that subject?—We shall be able to give you distinct evidence on that as well as on the other point. There are some other facts which I should like to bring before the Commissioners.

5832. (*Chairman.*) In this paper?—Yes.

5833. Just mention them?—Allusion has been made to the personal inquiry which Dr. Lewis and myself made through the town for three or four days. Dr. Waller Lewis, who was sent down especially by the Board of Health to report on the subject of the water, states that "after careful inquiry for three or four consecutive days, there could "not be found, with the exception of a single individual, any who had continued to drink "the company's water during the whole of the months of July, August, and September." The individual who thus continued to drink the Whittle Dean water during these three months was Mr. Burdon, of Westgate Street, a county magistrate. He lives in the immediate vicinity of the vicar's pump, the water of which is reckoned the best in the town, and his statement to us upon that subject was, that he had been obliged to give up drinking the water of the vicar's pump; that he had found it occasionally nauseous both in smell and taste; that it stank in twelve hours; that it had frequently brought on an attack of diarrhœa; he believed that it drained St. John's churchyard; that he had continued to drink the company's water without suffering any inconvenience.

5834. I understand the gentleman whom you have named to have said that the water of the vicar's pump, usually bright and agreeable, became during this epidemic offensive, so that he was obliged to discontinue the use of it?—Yes.

5835. And that he preferred the Whittle Dean company's water to the vicar's pump water at that time during the epidemic?—He stated that the vicar's pump water had made him ill, and that he had been perfectly well while he had drank the Whittle Dean water.

5836. Was that statement made by Mr. Burdon to you, or in your hearing?—It was made both to Dr. Lewis and to myself.

5837. Any further evidence on that point, namely, as to the effect produced upon the springs, which might possibly be attributable to this strange state of the atmosphere, or anything else, we are perfectly ready to receive?—I would mention the case of Mr. Winship, who gave in evidence that the water company's water stank, that he sent to the Blackett's Pant, and it also smelt. The Blackett's Pant is reckoned very good water.

5838. Is it supplied by you?—No.

5839. Is Blackett's Pant supplied from a spring?—It is supplied from the Leazes, from a colliery working. The spring is on the Leazes, in conjunction with a colliery working. I would mention the case of the Rev. Mr. Duncan, a Presbyterian minister, who lives in Lovaine Crescent. He continued to drink the water all the time. He was in the town all the time of the cholera, and neither he nor his family had any attack. His next door neighbour was alarmed at the accounts in the newspapers and drank Seltzer water, and he had a severe attack of cholera. I may further mention the case of Mr. Harford, in Regent Terrace. That gentleman shut off the water for a fortnight, and at the end of that time (he had been using the well water in his house) he had the misfortune to lose his wife and daughter of cholera. It is hardly necessary to occupy the Commissioners further.

5840. The impression which we have derived as to the quality of the well water here is not favourable. We shall be glad to take in detail Dr. Richardson's evidence?—There is just one other point which I would bring before the Commissioners; that is, with reference to a statement made by Dr. Gavin. I did not hear all his evidence, but I understood him to say that the supply of water for sanitary purposes was deficient.

5841. You would hardly dispute that, would you?—Yes, decidedly.

5842. As you were drawing water from the Tyne for the domestic purposes of the inhabitants, there was none to spare for washing the streets, surely?—We used an immense quantity. There was no water obtained from any source except from the company.

5843. No floating engine brought up from Shields?—No; it was suggested, but never brought.

5844. (*Mr. Simon.*) So that all the washing of the streets was done at the expense of your already slender store?—It was. On the 8th of August the corporation commenced the washing out of the lanes and the flushing of the sewers, from the 8th of August to the 17th of December. They used the water in that way for eighty-three days. When they first commenced they did not do it every day; afterwards, when cholera broke out, they did it every day; and I find that the average quantity taken in that way per diem was 21,000 gallons, and that the total quantity used in that way for flushing the sewers and washing the lanes was 1,743,000 gallons.

5845. Going down to the 17th of December?—Yes.

5846. Would it not have been a judicious economy, if you could have effected it, to have used only river water for cleansing the streets?—We could not possibly do it.

5847. The construction of your works would not allow it?—No.

(*Mr. Nicholson.*) The two descriptions of water, as I have stated before, were mixed.

5848. (*Chairman.*) You had no means of pumping except by pumping into your main outside the town?—None whatever.

(*Mr. Main.*) I may state, also, that a very large additional consumption of water this year was occasioned by our having contracted to supply the public subscription baths in Northumberland Street. The water with which the baths were supplied was formerly taken from Spital Tongues. It was very bad, and this year they got the Whittle Dean company to supply them. The quantity per week which they took was 175,000 gallons. Then the corporation baths in the New Road would have very likely the same quantity. I find that, between May and November 1853, there were 10,000 warm baths at the baths in the New Road. Then the workhouse, which only came on last year, consumes 14,000 gallons per week.

5849. (*Mr. Simon.*) At the first establishment of baths and wash-houses, do you say that they used 175,000 gallons a week?—At the public subscription baths in Northumberland Street; it is a different establishment from the corporation baths and wash-houses; they used that quantity during the summer. There is a very large plunge bath.

5850. (*Chairman.*) Do you happen ever to have been at the corporation baths and wash-houses?—Several times.

5851. Did you ever hear any complaints made?—I never heard any complaints made about the warm baths; I have heard the plunge bath complained of.

5852. In what respect?—That the arrangement of it is not good; it is a dark looking place.

5853. Did you ever hear any other complaints made with reference to the baths and wash-houses?—The only other complaint which I heard with regard to the baths and wash-houses was that there were not two entrances, one for females and the other for males. The females were thus debarred from using the baths.

5854. It had been stated to us that other complaints have been made; did you never chance to hear any others?—I never heard any others.

(*Mr. Main.*) Another very large source of consumption during the year was that the corporation had converted several of the large public privies into public water-closets.

Mr. R. Nicholson and Mr. D. D. Main.

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5855. At what time did they do that?—In 1852; but we did not feel it so much in 1852 as we felt it in 1853. There are six of those large public water-closets.

5856. (*Mr. Simon to Mr. Main.*) You would not consider any of these expenditures in water for particular purposes to be beyond the ordinary claims that you might expect to be made upon you; they are claims which you, I presume, would recognize as among those for which a water company is organized?—Certainly; I was only showing that the consumption had very much increased this year.

5857. But you would look upon them as claims for which it would be your business to provide in establishing your reservoirs and works?—Certainly.

5858. You would take them into your calculation?—Yes.

5859. (*Chairman.*) In the paper which you have put in you only mention four pants. In the paper which we have got from the town surveyor there are seven mentioned as supplied with water by the Whittle Dean company; will you just look through it and see which of those you identify?—There is one for the Manors Hospital which I did not include; it is hardly a public pant. I did not include the Vegetable Market nor the Fish Market pant either.

5860. (*Mr. Simon.*) Are they accessible to the public at all hours?—They are accessible, but I think they are not generally used by the public.

5861. Why not?—For instance, the Fish Market is surrounded by offices principally on the quay side.

5862. (*Chairman.*) These three, the Vegetable Market, the Manor's Hospital, and the Fish Market you do not include, as not being of any importance?—No.

5863. Have you any other point?—No.

Vide Q. 5443 5 ante.

The following is the analysis of Tyne water made by Dr. R. D. Thompson, which is alluded to in the evidence of Mr. Grainger and of Dr. Gavin, and which is objected to by Mr. Nicholson in his evidence foregoing, owing to the water having been taken two or three hours after instead of before low water and not having been filtered. It should also be added that the Tyne water was mixed with double its own bulk or quantity of Whittle Dean water before being supplied to the town.

REPORT on Water taken from the Tyne at Elswick, October 17th 1853, two or three hours after low water.

The water, when drawn from the jar in which it was conveyed from Newcastle to London, was turbid, from the presence of a considerable quantity of matter, mechanically diffused in the form of flocks throughout the mass of fluid. When this foreign matter was allowed to subside, the water presented a brownish aspect, similar to the colour possessed by water which, after a fall of rain, has passed over a soil impregnated with peaty or vegetable substances. On separating the mechanically diffused flocks which, on agitation, had imparted a muddiness to the water, they were found to consist of organized forms, similar to the appearances presented by infusorial animals, or diatomaceous beings, which have been claimed as belonging, according to some, to the animal, and, according to others, to the vegetable world. These animal or vegetable beings were infested with large numbers of very distinct animalculæ, or vibrios, which were sporting about with immense activity and courting the shade of the living flocky masses. I found the weight of this foreign matter to amount in the gallon to 4·502 grains; of this only ·545 grains was matter destructible by heat. The remainder consisted principally of silica, and still retained an organized form, corresponding apparently with the shields of the diatomaceæ previously mentioned. These possessed a reddish hue, from the presence of a minute quantity of oxide of iron, which either entered into the composition of the organized forms, or was derived from a minute portion of sand, which may have been diffused through the water. The presence of these living forms in water used by the inhabitants of a city, it appears to me, cannot be viewed as otherwise than highly objectionable in a sanitary point of view, acquainted as we are now with the influence which the lower forms of animal and vegetable life exercise in nature. In addition to these decided forms presented by the organic matter described, I found no less than 2·68 grains per gallon of vegetable matter, dissolved or finely diffused throughout the water, and which was in a condition approximate to that of organization, since it contained a considerable amount of siliceous inorganic matter.

The total quantity of matter, therefore, derived from organized sources, which I found to exist in the water, amounted to no less than 7·172 grains per gallon. This must be viewed as a large amount, when we take into consideration the fact that the total solid constituents in the gallon were 15·662 grains. The organic matter contained in the analysis thus approximated to one-half of the foreign ingredients.

I have also been able to obtain indications of the presence of nitric acid in the water, from which it is rendered probable that human excretions are mingled with the river, a circumstance which I have endeavoured to prove in reference to the well waters of Glasgow, and which renders river water, and still more strongly the well waters sunk in towns in the highest degree objectionable for domestic use in a sanitary point of view. The time is fast approaching when the inhabitants of cities, warned by an increasing knowledge of the science of health, will no longer consent to be supplied with river

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water, teeming with organized life, or with well water, drawn from pits communicating with the common sewers of cities, from which they are thoroughly impregnated with human excretions in solution.

The river water of Newcastle I consider, both from my acquaintance with the locality and from the present analysis, to be a most improper source of supply to the inhabitants of that city. The constituents of the water in the imperial gallon are as follows:

Siliceous shields of diatomaceæ	3·957	grains.
Organic matter accompanying the preceding	·545	„
Organic matter from the filtered water	2·680	„
Carbonate of lime	1·180	„
Siliceous matter	—	„
Sulphate of lime	3·330	„
Sulphate of magnesia	·190	„
Chloride of magnesium } Chloride of sodium }	3·780	„
	15·662	grains.

ROBERT DUNDAS THOMSON, M.D., F.R.S. Ed.,
Lecturer on Chemistry at St. Thomas's Hospital.

St. Thomas's Hospital, 31st October 1853.

Mr. D. D. Main.

30th Jan. 1854.

MR. DAVID DARLING MAIN, further examined.

5864. (*Mr. Simon.*) You are going to be kind enough to give us some information, that you have collected, with respect to certain deaths from cholera that occurred in Mr. Grainger's property?—Yes; I have made a personal survey of Mr. Grainger's property, and I am prepared to give some information upon it.

5865. Have you examined Clayton Street, and Clayton Street West, Grainger Street, Grey Street, Hood Street, Leazes Terrace, Market Street, Nelson Street, Nun's Street, and Shakespeare Street?—Yes.

5866. Containing in all 261 self-contained houses?—Yes.

5867. (*Chairman.*) Besides other tenemented houses, in which were thirty-three tenants or families occupying one room each?—Yes.

5868. Sixty-six tenants occupying two rooms each?—Yes.

5869. Forty-seven tenants occupying three rooms each?—Yes.

5870. And seven tenants occupying four rooms and above?—Yes.

5871. Altogether there were 414 different tenants or families in those streets?—Yes.

5872. (*Mr. Simon.*) Representing a population of 2,070?—Yes.

5873. (*Chairman.*) Estimating five persons to the tenant or family?—Yes, five to a family.

5874. (*Mr. Simon.*) Those 414 tenants or families were so well provided with water-closets as to have 517 of them?—That is including the shops and offices. There are 136 shops and thirty-five offices in those streets which are not included in the dwelling-houses.

5875. (*Chairman.*) During the day, then, at all events, the inhabitants of those shops and offices would be so many more added to the population of those streets, over and above the 2,070 inhabitants of the dwelling-houses there?—Yes, to some extent they would.

5876. (*Mr. Simon.*) In this population of 2,070 and upwards, there were twenty-eight deaths?—Yes.

5877. (*Chairman.*) Of the 261 self-contained dwelling-houses, how many were supplied by your water company?—255.

5878. Of the thirty-three tenants occupying one room each, how many were supplied?—Thirty.

5879. Of the sixty-six tenants occupying two rooms each, how many were supplied?—Sixty-three.

5880. Of the forty-seven tenants occupying three rooms each?—Forty-two were supplied by the water company.

5881. Of the seven occupying four rooms and above each?—Six.

5882. What number of those 2,070 people, then, do you compute to have water supply from your company?—1,980, or 95 per cent. of the resident population.

5883. How many of the 136 shops were supplied by you?—101.

5884. How many of the thirty-five offices?—Thirty-two.

5885. How many of the 517 water-closets?—494.

5886. (*Mr. Simon.*) We find that in Clayton Street there died eleven persons of cholera?—Yes.

5887. Can you tell us anything about those cases?—The first case in Clayton Street that I examined occurred in an eating house. The old lady who keeps the house showed it to me from top to bottom, and I certainly never saw a cleaner house in my life; but she told me that the person who died was a lodger of very drunken habits.

Mr. D. D. Main.

30th Jan. 1854.

5888. (*Chairman.*) Are you speaking of a case that occurred in Clayton Street East, near the corner of Nelson Street, behind the market?—Yes. The lodger was represented to be a man of very drunken irregular habits; he came home at all hours of the night very drunk. The night on which he died he came home about the middle of the night, and he was found next morning dead in the water-closet.

5889. (*Mr. Simon.*) Was there anything very decided to connect his death with cholera?—I do not know that there was anything to ascertain that his death was from cholera; but his death is registered as a cholera death.

5890. (*Mr. Newton.*) Do you know whether he was attended by any one?—No; he was found dead in the morning.

5891. Was he registered without any medical certificate as to the cause of death?—I know nothing of that; I merely took the name from the registrar.

5892. (*Chairman.*) What was your second case?—It was in the same street.

5893. (*Mr. Simon.*) A little way further down?—Yes.

5894. Was it one case or more?—There were four deaths in that house.

5895. (*Chairman.*) What were the circumstances?—One of the water-closets was stopped up, and the smell was not good from it; but, in addition, one of the tenants was a dealer in feathers. I requested the man to show me into the room containing those feathers, and I found a close sickening smell.

5896. (*Mr. Simon.*) And there was a stink arising from the water-closet also?—Yes.

5897. Was the water-closet on the basement?—One was, and one at the top of the house.

5898. Which was obstructed?—The one at the bottom.

5899. Which was the next case?—The next was a little further along, a person also of irregular habits; he used to come home at all hours of the night drunk. There was nothing the matter with the house that I could see.

5900. Was it ventilated at the back?—Yes, I looked particularly at the ventilation. The houses, though behind the market, are not erected flush with the market; there is a sloping ridge allowing for ventilation.

5901. The next?—The next was a very old woman. I could see nothing objectionable about the house.

5902. (*Mr. Town Clerk.*) Were these all really cholera cases?—They were all taken from the registrar as such.

5903. (*Mr. Hamond.*) Was there a medical certificate attached to each?—I know nothing of that.

5904. (*Mr. Simon.*) The next?—The next occurred in a fruit shop; the person lived under the fruit shop in a cellar kitchen.

5905. Was the water-closet in good condition there?—Yes.

5906. (*Mr. Town Clerk.*) Water-closets are subject to inconvenience in frost?—I have found several of them stopped.

5907. It is useful to have a privy too?—Some of Mr. Grainger's houses have privies, but they are all more or less provided with water-closets in addition.

5908. (*Mr. Simon.*) What is the next case?—No. 53, still on the same side of Clayton Street. There was a death there, but I could see no apparent cause for it; the house was clean and the people seemed cleanly; the water-closet was in perfect order, and there was nothing wrong that I could see.

5909. The next?—The next was an old man about 70, and he lived adjoining a fruit shop also. I might state that the inhabitants were warned to abstain from eating fruit, and that it is possible the fruiterers might have a large stock of fruit on hand which migh have become offensive.

5910. There is one other on the other side of Clayton Street?—There is just one, and it also adjoins a fruit shop.

5911. (*Chairman.*) You have a reference to some other streets?—That has finished Clayton Street. I take Nuns' Street next; a person of the name of Danby died there. I think his death was among the first.

5912. What circumstances did you find there?—I found nothing except that he adjoined a fruit shop again.

5913. The next?—The next was a person of the name of Shaw; he had been a delicate man for many years. There was nothing objectionable in the house that I could see.

5914. (*Mr. Newton.*) Was he a patient of yours?—I am not a surgeon, but I was told so by his relatives.

5915. (*Chairman.*) Let us take the next street in your list.—The next street is Nelson Street; two deaths occurred in Nelson Street; a man and his wife were struck dead, both in the same night. I examined particularly into that house. The water-closet, I think, is the filthiest that ever I saw. I got one of the servants to get a candle to shew me it; it has not been used for many months, and the whole place is swimming with liquid filth.

5916. Do you think it was in the same state in August 1853?—The servant who showed me in said that after the death of Mr. and Mrs. Harrison, she took a little lime to throw upon it, and that she could not enter it without having her apron up to her nose and mouth.

(*Mr. Newton.*) I attended Mr. Harrison.

5917. Did you notice the same circumstances?—It is a very dirty house, and the room is not water-tight.

5918. Did you notice the circumstance to which Mr. Main alludes, of the water-closet being in such a state at that time?—No, I did not.

(*Mr. Main.*) It is there now in the same state.

5919. And did the woman give you to understand that it had been in the same state then?—Yes, even worse.

5920. Because of the lime which she had thrown upon it?—Yes; she also said that the water-closet had been out of order, and that she had got the plumber to come to repair it, but that the water-closet was so filthy that he would not enter the place to do it. I considered that it was entirely the fault of the tenants. I inquired at Mr. Grainger's office, but I found that they had never complained there.

5921. Which is the next case?—Those are all the remarks, I think, which I have to make.

5922. (*Mr. Town Clerk.*) Did you look into the house of Scott, the tailor?—I did not. I might mention that I looked into a house in Grainger Street, which is rather remarkable. The house itself is perfectly clean, and supplied with water-closets, but on each side of it the houses, although they have water-closets, are not supplied with water, and the medical gentleman who attended a person of the name of Tiffin, who died, has recommended the other inmates to leave the house. They have not a supply of water to the water-closets of the houses on either side of it.

5923. (*Mr. Simon.*) So that they become a nuisance to the house which is between them?—Yes.

5924. And in that house some one died of cholera?—Yes.

5925. (*Mr. Hamond.*) Is the water laid on to that house?—Yes; it is merely a matter of economy on the part of those tenants.

5926. (*Mr. Town Clerk.*) They will not use it?—They carry the water to the water-closet instead of having the pipe to it.

The witness delivered in the following paper.

WHITTLE DEAN WATER COMPANY.

Times of High Water and Pumping from the river Tyne, in July, August, and September 1853.

Date.	Time of High Water at Newcastle.	Commenced Pumping.	Ended Pumping.
	H. M.	H. M.	H. M.
July 5	3 30	7 45	10 –
„ 12	8 10	11 25	1 20
„ 19	3 26	6 30	9 20
„ 26	8 17	11 30	2 30
August 2	2 12	5 45	8 20
„ 9	7 9	10 40	12 30
„ 16	2 9	5 15	7 40
„ 23	7 7	10 40	1 20
„ 30	1 13	4 –	7 –
September 6	6 11	9 25	11 35
„ 13	12 6	4 35	6 –
„ 14	1 54	5 –	7 –

(*Mr. Main.*) There is just one other point. It has been supposed by some gentlemen who gave evidence that the water at Whittle Dean itself was not good on account of the small quantity remaining in the reservoirs. I have a gentleman here who is the manager of a large manufactory, which takes the water direct from the Whittle Dean before it reaches Newcastle, and before the Tyne water enters the pipe. He is prepared to state the amount of disease that occurred there. It is a large manufactory on the banks of the Tyne, about a mile and a half from Newcastle, where there are 450 men and about 300 people inhabiting houses in the neighbourhood; he is here to state that. It was said that the Whittle Dean water was not good of itself, even before it was mixed with the Tyne water.

5927. (*Chairman.*) It was stated that it was muddy; that it got low, and that the wind dashed the water against the earth or clay below the stone penning, and made it so?—That would not happen more than one or two days throughout the whole period.

Mr. G. Hutchinson.

30th Jan. 1854.

Mr. GEORGE HUTCHINSON examined.

5928. (*Chairman.*) Are you the manager of the works of a large manufactory out on the Elswick Road?—Yes.

5929. How many men have you employed in it?—Between 450 and 500.

5930. Are you supplied with water from the Whittle Dean company at a point in their main previous to the point where the Tyne water is pumped into the main?—Yes; about a mile and a half before the Tyne water is pumped into their main.

5931. What amount of cholera had you among your 450 men?—We only had three deaths from cholera; the number of attacks I do not know.

5932. What is the nature of the works?—Engine works.

5933. (*Mr. Town Clerk.*) Among how many?—About 470 people.

5934. (*Chairman.*) Where were the men lodged?—Many of our men live in Newcastle. We have about 200 of our people, with their families, comprising probably a population of about 350, who reside in the neighbourhood; these houses are all supplied with Whittle Dean water. We have had but one death among these.

5935. Where did the other two deaths occur?—The two deaths were of persons residing in Newcastle, but working at our manufactory.

5936. How did you find the water?—I have been supplied with the water since it was first laid on.

5937. How did you find the water in July, August, and September 1853?—I do not recollect anything to complain of in the water at any time.

5938. You do not remember to have seen it discoloured or muddy?—No; not at any time, excepting at such time as we have been repairing the pipes in our works.

5939. (*Mr. Hamond.*) I believe Mr. Armstrong, in whose employment you are, is the chairman of the Whittle Dean water company, is he not?—I believe he is.

T. Richardson, Esq., Phil. Dr.

26th Jan. 1854.

THOMAS RICHARDSON, Esq., Phil. Dr., sworn.

5940. (*Chairman.*) Have you been in the habit of making analyses of waters by chemical process?—Yes.

5941. For some years?—Yes.

5942. Have you, on one or two occasions, made analyses of water supplied to you by the Whittle Dean company?—Yes.

5943. (*Mr. Simon.*) You made such an analysis in September 1850?—I do not remember the exact dates.

5944. Of water taken from the livery stables in New Bridge Street?—Yes, I remember that.

5945. (*Chairman.*) Are those correct copies of the letters which you then wrote, and of the minutes of the analysis which you then made (*handing two papers to the witness*)?—Yes, I think they are.

Assay Office and Laboratory,
Newcastle-upon-Tyne, 19th Sept. 1850.

Messrs. the Directors of the Whittle Dean Water Company.

Gentlemen,—We collected a quantity of water last week from the supply furnished to Mr. White's livery stables in New Bridge Street, in which we found ·92 of a grain of brown vegetable matter in suspension, the water being, in other respects, bright and clear. This is not a large quantity of finely divided matter to be diffused through a gallon of water. We also found 34·4 grs. of matter in solution in the same quantity of water, composed of the usual inorganic and organic constituents. The water was free from any nitrates or other matter indicating a contamination from town drainage.

We are, &c.,
RICHARDSON and BROWELL.

Assay Office and Laboratory,
Newcastle-on-Tyne, 11th Jan. 1854.

Mr. Main, Water Company's Office.

Dear Sir,—The following is a copy of the minutes of my analysis made the 19th Sept. 1850. Sample taken from Mr. White's livery stables, New Bridge Street. "One quart "of this water left ·23 of a grain of suspended matter of vegetable origin of a brown "colour. One quart evaporated to dryness gave 8·6 grains fixed residue, containing a "considerable quantity of organic vegetable matter. The inorganic matter consisted of "sulphate of lime, some magnesian salts, and a large proportion of chlorides. Some slight "quantity of carbonates precipitated on boiling. No nitrates present."

I am, &c.,
(Signed) THOMAS RICHARDSON.

5946. (*Mr. Simon.*) Was that analysis made on an occasion when some pumping was going on from the river?—I am not aware of that.

5947. (*To Mr. Main.*) Was that the case?—Yes.

5948. Was that water a combination of the Tyne water and the ordinary Whittle Dean water?—It was mixed in equal quantities.

5949. So that you could suppose it to be comparable to the water which you were supplying last September?—The water supplied in 1850 would be worse than the water supplied in 1853.

5950. It would contain one-sixth more than of river water?—Yes.

5951. (*To Dr. Richardson.*) You found that the water contained about 34½ grains of solid matter to the gallon?—Yes.

5952. Would not you consider that a large admixture of solid matter?—A good deal depends upon the character of the mixture.

5953. But the thing being intended to be water, and not soup, would you not consider it rather a large quantity of solid matter?—Not of bi-carbonate of lime. If it was sulphate of lime it would be objectionable.

5954. If of carbonate of lime, would you not consider it a large quantity?—A large quantity to be taken regularly as a drinking water.

5955. And as a water for household purposes?—Certainly, for domestic purposes. It would be hard water.

5956. You speak of its containing "the usual inorganic and organic constituents." What do you consider the usual organic and inorganic constituents of water?—Vegetable and some animal matter, when water is supplied from the sources from which they obtain it here.

5957. What would that animal matter be?—It depends entirely upon the source of the animal matter. It might be a decomposition of the refuse which collects in the town and percolates through the strata to the source of the spring. It may be the refuse water from the sewage, such as soap, &c.

5958. Do you think it probable, in this case, that such refuse matter was contained in the water?—It is possible.

5959. From your chemical analysis, should you say that it was possible that such material was contained in the water?—I could not answer that question from the notes which were made at the time.

5960. I infer from your analysis that if any such materials were present they were in an early stage of their transformation, for I observe that you say that no nitrates were present?—Yes, the oxydization had not proceeded to that extent.

5961. The water contained a large proportion of chlorides?—Yes.

5962. Whence should you think that those chlorides were derived?—I find chlorides in considerable quantity in spring water in this neighbourhood, and there is a considerable quantity of chlorides in the river water.

5963. Do you here find chlorides in considerable quantity in the spring water of rural and comparatively uninhabited districts, where the water represents the drainage of land only?—We have found chlorides in water from some of the districts in this neighbourhood at some distance from Newcastle, but the quantity was not large. Perhaps two or three grains to the gallon.

5964. When you speak of a large proportion of chlorides in an urban district, what do you think would be the probable source of the chlorides?—It might be the spring water, and it might be the river water; some of the spring waters here are loaded with chlorides.

5965. And in that case where do you think the chlorides have come from?—It is impossible to answer. In some cases we have found a gallon of water pumped from a colliery containing nearly half its weight of chloride of calcium; very little chloride of sodium and chloride of magnesium; nearly all chloride of calcium. It is very difficult to account for it here where the district is very much broken up, and the source of the water is affected by the collieries in the neighbourhood.

5966. You would not consider a large proportion of chlorides to attest decidedly an animal origin?—No; I could not draw such a conclusion from the presence of chlorides in this neighbourhood, certainly.

5967. I observe that the quantity of carbonate precipitated was small?—Yes.

5968. And that a certain quantity of lime existed in the form of sulphate?—Most probably.

5969. Would you consider that an objectionable ingredient?—Yes.

5970. Then in November and December 1853, and since, you have made certain other analyses of water, that was exclusively Whittle Dean water, endeavouring to obtain an accurate analysis by resorting to several specimens taken from different taps?—No, taken from the same tap.

5971. At different periods of the week?—Yes; each day a gallon was taken; and the whole quantity thus collected during the week was examined.

5972. Is this (*vide paper subjoined*) a correct statement of thoseanalyses?—It is, I believe.

T. Richardson, Esq.

26th Jan. 1854.

Analysis of the Water supplied by the Whittle Dean Company, taken from a stand pipe in Dawson's Court each day during the week ending as follows :—

	1853.						1854.		
	Nov. 23.	Nov. 30.	Dec. 7.	Dec. 14.	Dec. 21.	Dec. 28.	Jan. 4.	Jan. 11.	Jan. 18.
Carbonate of lime, &c. -	12·36	8·60	6·28	6·88	12·00	11·50	13·00	12·50	10·00
Sulphate of lime - -	3·89	4·62	4·48	3·36	5·78	5·78	3·74	3·74	4·08
Common Salt, &c. &c. -	traces	6·38	8·84	6·40	·72	2·22	·76	3·26	1·92
Organic matter - -	1·33	1·19	1·41	2·24	traces	1·58	1·00	1·00	·92
In solution, per gallon -	17·58	20·89	21·01	18·88	18·50	21·00	18·50	20·50	16·92
In suspension, ditto -	·20	·10	·25	·07	·03	·09	1·31	·13	·35
Amounts of rain fall during the same week - -	·00	·60	·00	·31	1·38	·40	·00	2·01	

5973. I find in an examination of this paper, that, for the week ending 14th of December, which presents unquestionably one of the more favourable results, you get nearly seven grains of carbonate of lime in a gallon?—Yes; 6·88 grains.

5974.—3⅓ grains of sulphate of lime?—Yes.

5975. 6·4 grains of muriates, &c.?—Yes.

5976. 2·24 grains of organic matter?—Yes.

5977. Is not that a very large quantity of organic matter to find in water?—Of vegetable organic matter it is.

5978. Was this all vegetable organic matter?—Yes. From the small quantity which got in examining the water, we came to the conclusion that there was no animal matter present.

5979. Can you form any opinion as to the source of that vegetable matter?—It seemed be peaty matter, decomposing vegetable matter.

5980. What would be the hardness of that water?—We did not examine the hardness of the water; not by Clarke's test.

5981. By any test?—No.

5982. Would you speak of water containing 3⅓ grains of sulphate of lime in a gallon as a hard water?—No.

5983. With 6·88 grains of carbonate of lime added?—Scarcely. Compared with distilled water of course it is hard, but not as compared with the waters of this neighbourhood; it would be considered a soft water in this neighbourhood.

5984. Have you ever analysed the water of the Tyne simply and by itself, at the time of low water?—No, never.

5985. Are you acquainted with the spot of the river from which the water has been drawn?—Yes.

5986. Do you consider that in that position there would be a risk of the water at the ebb of the tide, say at low water, containing sewage matter?—Not when the tide is unning out.

5987. Are there any buildings above it?—Yes, but not many.

5988. So that there would not be much sewage at least?—From my recollection of the locality, the sewage I think would penetrate the soil; it would not reach the river except by passing through the ground. It is near a sewer on the other side.

5989. You mean it is just above a sewer?—Above a sewer.

5990. Supposing pumping were continued till about the period of low water, when there would be very little down current, would the sewage escaping be likely to diffuse itself towards the place whence the water was pumped?—There is a possibility of it. It depends upon the force with which the pumping was going on, whether it would attract the sewage or not; and also on the quality of the sewage water, and the force of the stream.

5991. (*Chairman.*) The force of pump-suction and the amount of fresh water running down?—Yes.

5992. (*Mr. Simon.*) We seem to have it very clearly and unmistakably in evidence before us, that care was taken at the pumping station of the water company to avoid drawing from the river at the time when it would be most probable that the water would contain town-sewage. On the other hand, we have very positive statements of an offensive, in fact it was considered, a putrid flavour in the water, and a smell to the same effect. Can you give us any suggestion as to the source of those conflicting statements and testimonies?—On

one occasion, on examining the water from these taps that I allude to, the water was partially offensive, and I think I reported it to the water company. I was not then employed by the water company; it was gone into as one of the experiments of the gentlemen in the laboratory. I called the attention of the company to it, pointing out to them the nature of the water; and when we came to examine it, the cistern on the roof had got foul with all sorts of matter. There was a great deal of animal matter in it; we do not know how it had accumulated there; but it was offensive.

5993. Was it an open cistern?—An open cistern. It was quite clear that the water there had been contaminated by other matters which had not arisen from the water.

5994. You are a water-drinker yourself?—Not exclusively a water-drinker.

5995. A considerable water-drinker. Had you personal experience of the quality of the water during the time of the epidemic?—We did not use the Whittle Dean water; we had a well on our own premises, from which we supplied ourselves.

5996. Had you opportunities, however, of observing the quality of the water during the epidemic?—No, I cannot say that I had.

5997. (*Chairman.*) You do not usually drink Whittle Dean water?—We have not got it on the premises at all; we have an unfailing source of water on the premises. We collect water occasionally from one of the pants in Newcastle; but I think it is used for washing and other purposes, our water being rather hard.

5998. (*Mr. Simon.*) Assuming for a moment that the statements I have mentioned as to the water are perfectly trustworthy, how would you account for them?—We know that the Thames water, kept for any length of time, undergoes a peculiar putrefactive process, and if we were to infer that there is any analogy between the Thames and the Tyne, the Tyne water itself would furnish an explanation of it.

5999. Do you think that the Tyne water, drawn under the circumstances under which the company drew their water, would be liable to the same kind of putrefaction, as affects the Thames water when it is kept; different in degree of course, but of the same sort?—I think it would be of the same sort.

6000. You think there is a sufficiency of organic matter in it at all times of the tide to render it subject to the same sort of putrefactive process?—Yes; kept a certain length of time, and under circumstances likely to promote that putrefaction, I think it is quite possible.

6001. That it always contains an appreciable amount of dead organic matter?—Yes.

6002. Animal and vegetable?—I think not much animal; a small quantity of animal matter. The sewage water of Newcastle, collected from Grey Street, which was analyzed by an assistant of mine, shows that there is not a great deal of organic matter even in the sewage.

6003. Would not that seem to confirm an impression which has been given us, that there is not a great deal of the excrement of the town passing into the sewers?—It is very largely diluted with surface drainage.

6004. This analysis is of sewage water from the sewer in Grey Street?—Yes; we sent a man up the sewer and collected it there. It was not done with the view to any sanitary investigation. It was done more with the view of knowing how the sewage water might be made available; and the inference drawn from that analysis goes to show that it would be much more advisable to carry off the surface water by drains, independently of the sewage water, so that the sewage water might be by itself; and then, being so much more impregnated with phosphates of lime, potash and ammonia, it would pay the corporation to collect it.

6005. But with the rain-water it would not?—We know that we could buy phosphate of lime and ammonia much cheaper than we could manufacture them out of sewage water when diluted to such an extent with rain water.

6006. (*Chairman.*) You have paid a good deal of attention to the question of sewage application, have you not?—I paid a good deal of attention to it with Dr. Sutherland some years ago; and there is no question that, under such circumstances, it would not pay. The farmer could buy the valuable ingredients much cheaper in another form.

6007. When the surface drainage is mixed with it, you mean?—Yes; but it is very different when you collect the pure sewage. It would pay well then; it would pay for the construction of new sewers.

6008. You do not doubt that a system of sewers might be so organized, as, by the revenue ultimately thence derived, materially to diminish at least the ordinary cost of sewer-construction?—I have no doubt of it.

6009. That by improved principles of sewerage, and sewage application, sewering may be done very cheaply?—You must have a system of sewers to carry off the surface water, and a deep sewer to contain the whole of the proper sewage of the town, and then it would be in such a concentrated form as to pay for collecting, and for the expense of making the system permanent. Then the surface water, especially in paved streets where it has not time to come in contact with the decomposed organic matter accumulated in process of years below the pavement, could be run with safety into the river, without contaminating that river so as to be prejudicial to public health.

6010. (*Mr. Simon.*) You have made several analyses also of the spring waters of this town?—Yes.

6011. And you are familiar of course with the local geology?—To some extent.

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6012. And with the accidents of contamination to which the soil is exposed?—Yes.

6013. Comparing one with the other, that is to say, comparing your analysis with what you know of the geology and the history of the soil, should you think that the springs would be likely to furnish a safe source of supply?—No.

6014. Why?—They are all more or less contaminated with animal matter; and some of them with a most extraordinary quantity of nitrates, so much so that you are led to assimilate it with the well near Highgate cemetery in London, which was analysed by a member of the chemical society, and also others alluded to, I believe, in Mr. Simon's report upon the City of London.

6015. Have you made any analysis of any springs here near the church-yards?—Some of the springs which we have examined are near church-yards; but without knowing the exact state of the geological formation there, it would be difficult to say whether the drainage of the church-yards had passed near these springs, as Mr. Dobson's plan of the peculiar upper stratification of the town will show you that the drainage of a church-yard may get to a most unlikely spot some way off and pass by a spring in the immediate neighbourhood.

6016. Should you object to hand in for our information those analyses of spring water?—With the consent of the corporation I can do it.

6017. (*Mr. Simon to Mr. Arnott.*) Would there be any objection to it?—(*Mr. Arnott.*) I should think not.

(*Dr. Richardson.*) These analyses were all made at the request of the corporation. Of course, it is not considered professional etiquette to make use of property belonging to another person; but these are the names of the waters, as far as they have been handed to me, and the others are numbered, lettered, or dated.

Spring and Well Waters in Newcastle, &c.

	Spital.	Manors.	Hay-market.	Dobson's	Spital Tongues	North Elswick.	St. Thomas-st.	Vicar's Pump.	Fighting Cocks' Pant.	Vicar's Pump.
Carbonate of lime, &c.	24·32	14·48	20·80	9·80	5·48	1·00	16·36	28·20	2·58	24·00
Sulphate of lime -	27·00	133·84	46.72	23·12	20·59	26·56	39·03	26·42	29·87	47·79
Common salt, &c. -	22·68	12·08	32·48	39·08	9·93	22·44	22·21	40·78	16·63	32·21
	74·00	160·40	100·00	72·00	36·00	50·00	77·60	92·40	49·00	104·00

6018. I find a water here which contains 160 grains of solid matter to the gallon?—Yes.

6019. (*Chairman.*) 133 of sulphate of lime?—Yes, it is very nearly saturated.

6020. (*Mr. Simon.*) You do not mention nitrates at all?—No, for this reason: several of these waters contain an enormous quantity of nitrates and a quantity of animal matter; and to have estimated the nitrates quantitatively would have necessitated a separate analysis, which would have been more expensive than the corporation required.

6021. The nitrates, of course, result from the complete oxydization of certain animal matters?—Yes.

6022. And that, although a quick process, is still one which requires a certain time and a certain extent of filter for its operation?—Yes, and a certain stratification.

6023. Can you conceive it a thing of frequent occurrence that these waters would pass off, containing organic matters not yet completely oxydized into nitrates?—Certainly.

6024. And would those organic matters be fœtid?—They might be.

6025. So that you would consider these waters unsafe drinks for the population?—Yes; I consider these waters here unsafe, although I know that some of these waters are used by portions of the inhabitants, and I will not say highly approved of, but at all events, no fault is found with them.

6026. They taste cool?—They taste cool.

6027. (*Chairman.*) Is your own well derived from the same stratification?—It is; it contains a considerable quantity of iron and sulphate of lime; it is a hard water. It is a very pleasant drinking water, but I do not think it contains much animal matter.

6028. The stratification seems to be very irregular?—Very irregular. This water to which I allude is only on the opposite side of the street from the water at Mr. Dobson's, which is loaded with nitrates, so that you cannot draw any conclusion from one spring in one part of a locality, as to what its neighbour may be. When you examine the stratification you will find that two springs, which are all but contiguous to each other, may be one very foul with nitrates and animal matter which may travel there from a churchyard a considerable distance off, while the other, in consequence of the peculiar formation, will be quite pure.

6029. (*Mr. Simon.*) Have you ever taken any notice of the qualities of the soil here, as regards its infiltration with organic matters, except by testing the springs?—I have not examined them directly.

6030. (*Chairman.*) What is your view of the stratification here with reference to the interposition of the sand and gravel beds among the clay?—I have not made that a subject of examination; my information is all derived from Mr. Dobson.

6031. (*Mr. Simon.*) In analysing these waters you have of course had occasion to evaporate them; have you noticed in heating them any offensive smell?—Not from the waters themselves; the waters are very clear bright waters.

6032. Have you from their residue?—From their residue most offensive.

6033. Have you noticed it in the residue of any of the Whittle Dean waters?—Never.

6034. Of the Tyne water?—I do not think I ever examined the Tyne water by itself.

6035. Of the mixed Whittle Dean and Tyne?—That I do not remember; it is such a long time since I examined the mixed Whittle Dean and Tyne; but Tyne water I have no doubt would give off an offensive odour just in the same way as Thames water does.

6036. (*Mr. Arnott.*) Do you not think that the introduction of the surface water into the sewers tends to purify them and keep them clean?—It tends to carry off the matter which would otherwise adhere to the sewers, but a great proportion of that which adheres to the sewers is the matter which is washed by that water from the surface. If you examine the analysis of this sewage you will find that the matter which forms the sediment there, is in fact mainly the abrasion of the pavement or the macadamizing, which is much heavier than the other sewage matter. If you had not the surface water, I think you would not have by any means so large a deposit in the sewers.

6037. Would you have a sufficient quantity of water to cleanse the heavy matter out of the sewers?—I think the matter that would go into the sewers would be of no great specific gravity; the matter washed from the surface is the insoluble and heavy matter.

6038. (*Mr. Clark.*) Do you mean to say that it would be to the advantage of the town not to carry the surface water down the drains?—Yes, with a view to profit, and that would pay for flushing and cleansing the sewers.

6039. I think the health of the town should be the first consideration; and the more water you get to flush the sewers, the more likely they are to be kept clean. As it is, have you not often passed down the streets, and almost been knocked down by the smell?—Not in Newcastle.

6040. Have you ever passed down Grainger Street, opposite St. John's Lane?—Repeatedly.

6041. And have you never found a smell?—No. I have found a considerable smell, certainly, in passing down Pudding Chare and Rosemary Lane; but I considered that it was owing to the surface drainage, and not the sewers.

(*Mr. Clark.*) From the communications made by open drains through the streets with the sewers, and from the want of water passing down them, the smell is very offensive; and yet the doctor seems to wish to withhold all the water of the surface from the sewers.

(*Dr. Richardson.*) But I would allow no communication between these sewers and the surface.

6042. (*Mr. Clark.*) Is it possible that the water in the water pipes may have been impregnated with animal matter, or have had a smell produced in it by these pipes passing through soil loaded with animal matter?—Which water?

6043. The water supplied by the water company?—I do not think that the water in passing through the pipes could become contaminated.

6044. (*Mr. Simon.*) Would you consider that the pressure under which the water is distributed would be a sufficient guarantee?—I was going to say that the pressure is towards the outside, not towards the inside. It is not like a gas pipe, which is occasionally empty. The water pipes here are always full.

6045. (*Mr. Clark.*) Does not a great accumulation of animal matter take place in the soil of the town, from the ash-pits and privies. They are generally sunk two or three feet, and there must be a subsiding of animal matter into the soil from them?—There is no doubt that these springs which are so contaminated with nitrates and animal matter, derive a portion of their nitrates and animal matter from that source.

6046. (*Chairman.*) You did not find much fœcal matter in the sewage when you took the water thence?—The only characteristic that I remember to have found was the presence of soap. It is put down there as animal matter, but in endeavouring to ascertain the origin of the animal matter, the only characteristic action which we could obtain was that of soap.

6047. (*Dr. Robinson.*) Have you ever had occasion to analyse the water supply from the pants themselves?—I do not know of anything beyond those analyses which I have handed in, and which, I believe, are in some cases of the pant water.

6048. The water supplied from the pants themselves?—These waters, analysed by direction of the corporation, I believe are waters from some of the pants.

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6049. It is important to ascertain whether the waters analysed by you were taken from the wells and springs, or from the stand pipes?—I think from both. Some of the waters here I know had been taken from the pants; that will be given by the headings. I have not yet received the headings beyond those four which I have enumerated.

6050. (*Mr. Simon.*) Are they generally furnished to you marked A, B, C, and so on?—Or sometimes with the date. There is one thing which I may remark. I believe with respect to some of these springs, that they had previously been the sources of supply of water to the inhabitants, but that after the establishment of the water company they had been abandoned by the corporation; and therefore that the water recently taken out of these wells was in some measure standage water, and probably more saturated than it would have been if there had been a frequent pumping.

6051. (*Chairman.*) Do you mean the Spital well, for instance?—Yes; that was recently opened.

6052. That had been shut up?—Yes.

6053. And the Manors well?—I do not know about the Manors well.

6054. (*Mr. Simon.*) Where is your office?—Near the Literary Society.

6055. In what street?—At the foot of Westgate Street.

6056. (*Chairman.*) Had the Haymarket well been shut up, and subsequently opened?—Yes.

6057. And the one near Mr. Dobson's house?—No; that I think had not.

6058. (*Mr. Arnott.*) None of the water from those wells was supplied to the inhabitants?—No; they were opened merely for analysis. I am informed that the Spital never had been a well, but it was merely sunk to see if water could be obtained there.

6059. (*Mr. Simon.*) You said that you sometimes passed through Pudding Chare and found a stink?—Yes; the atmosphere is loaded with an offensive odour generally.

6060. Have you happened to pass through any other of the narrow passages?—No; that is a short cut which I sometimes take.

6062. You do not pass through Denton Chare?—No.

6063. Pudding Chare is the only Chare which you know?—That I often pass through.

6064. Have you any opinion to offer on the quality of the gas?—I think it is perhaps average quality; it contains no doubt sulphuret of carbon, but there is no means to destroy that; it is always present in coal gas. There is a certain quantity of ammonia in it; for we find that the water condensed from the gas contains sulphate of ammonia, and that may come from the sulphuret of carbon.

6065. Have you any personal knowledge of the injury said to be inflicted upon books at the higher levels of rooms?—No experience of my own.

6066. What should you attribute it to?—It might be attributed to the sulphurous acid which is evolved by the combustion of the sulphur.

6067. Would it exist uncombined?—It would depend upon whether there was more sulphur or more ammonia. Faraday, who examined that subject very minutely in London, found that it was sulphurous acid which was in excess that injured the books in the Athenæum; the ammonia was removed.

6068. (*Dr. Robinson.*) Is not sulphuric acid sometimes found on combustion in impure gas?—I think not, unless there is a base to combine with it; then sulphate of ammonia is formed; but sulphate of ammonia is not formed in the first instance, but sulphite.

6069. It would be but a small proportion of sulphur. Would not the intense heat cause the combination of that sulphur, and so cause sulphuric acid?—I think not.

6070. (*Chairman.*) Have you any other point on which you would wish to remark?—Nothing which occurs to me, I think, beyond what I have alluded to.

6071. (*Mr. Simon.*) Have you anything to offer on the causes of the cholera?—There are many opinions upon the subject. As far as I myself can offer any opinion, it appears to me due to an atmospheric cause; some change in the condition of the oxygen.

6072. Have you kept any ozone meter?—No; I regretted when the cholera came to Newcastle, that we had not kept an instrument determining the presence of ozone. That might have thrown some light upon the subject.

6073. Did you make any barometrical observations?—No; they were kept at the Literary Society during the whole of the time.

6074. Are you aware whether any peculiar phenomena were observed?—I am not.

6075. There was a great stagnation of the atmosphere?—Very great, and it seemed to be loaded with moisture.

6076. Both which circumstances, concurring with the high temperature, would of course give great development to the decomposition, and to the effects of the decomposition, of any local filth which might exist?—No doubt it would promote the decomposition of many matters likely to undergo decomposition; and then again the absence of a considerable quantity of ozone to thoroughly oxydize those matters, so as to remove any injurious effects arising from them, would be a further evil.

6077. You were not, however, able to make any precise observations as to defective oxydization of organic matters at that time?—No; but the ozone would have determined that.

6078. Any electrical observations?—No; I was employed chiefly in preparing a great number of compounds to try them upon cholera patients.

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6079. Were any of them found successful?—I do not know whether we could attribute any success to them. In some instances they were; but I do not know whether the patient would not have recovered without the remedy; that is to say, we could not trace the cure to the substance which we employed.

6080. (*Mr. Clark.*) Did you ever make any analysis of the secretion of excrements?—No.

6081. Do not you think that you would have been very usefully employed in that way to the public?—If I had thought that the result would have thrown any light upon the subject we should have done it; but I do not think that chemistry is sufficiently far advanced yet to be employed in that way.

6082. You thought that you were more usefully employed upon the water?—No; I think I was more usefully employed in trying to devise some remedy, or suggest something which would act beneficially. A great many persons who corresponded with me at the time suggested different remedies.

Mr. EDWARD MILLER, sworn.

Mr. E. Miller.

6083. (*Chairman.*) It has been considered desirable to ascertain very precisely from you the hours and times (as regards high and low water) at which the engine of the water works, of which we understand you to have had charge during the late epidemic, was worked. Can you tell us in the first place what instructions you received generally as to setting the engine to work, or from whom you got them, and so on?—Of course when we started, if it were high water this morning at six o'clock, we should begin pumping about ten.

6084. If it were high water at six you would begin at ten?—Yes, to pump out of the river; at four hours after high water.

6085. How long did you continue to pump?—2½ hours to 2¾.

6086. Do you ever remember any occasion on which you pumped except at those times, namely, from four or four and a half hours after high water to low water?—No, that was our regular time.

6087. (*Mr. Simon.*) Can you from your own knowledge answer for it that you never pumped after the turn of the tide?—Not coming up.

6088. That you can positively answer from your own knowledge?—Yes.

6089. Never on any one occasion?—Not at all.

6090. Should you have known it if it had been done?—Yes, of course.

6091. (*Mr. Brooks.*) Do you pump when the tide is standing, and remains a long time still before the flood again?—No.

6092. (*Mr. Simon.*) Did you never on any occasion pump while the tide was stationary in that way?—No, not that I am aware of.

6093. (*Mr. Mason.*) May I ask how he did when it was low tide during midnight?—We pumped night and day.

6094. Did you pay particular attention to draw it from the river at the proper time?—Certainly; we had the tide-table to go by; we could go by nothing else.

6095. (*Chairman.*) It has been alleged or suggested to us, that the engine chimney at the water works was smoking for some days after the 15th of September, on which it was stated that the water company ceased to pump water from the river Tyne. What have you to say to that?—It never did. The fire was put out on the 15th, and there was never a fire in the furnace since.

6096 (*Mr. Main.*) At what time on the 15th was the fire put out?—It was about 11 o'clock in the day when I got orders to stop the engine, and I just opened the fire and let it out gently.

6097. (*Chairman.*) Supposing you pumped some time in the morning of the 15th from the river into the tank or filter, could you have pumped all that water out into the Arthur's Hill reservoir the same day?—No.

6098. What became of that water then?—It is standing in the tank still.

6099. (*Mr. Simon.*) Did you ever observe a disagreeable smell in the water which you pumped up out of the river?—I did not.

6100. You drank it, I suppose, pretty often?—Yes.

6101. (*Mr. Main.*) Did the other men drink it?—Yes.

(*Mr. Main.*) There is a point about the freshes on which Mr. Rayne spoke.

6102. (*Chairman to Mr. Miller.*) Did your occupation lead you to observe the state of the river from day to day pretty accurately?—No, not particularly; but we observed a very great deal of freshes out. About the 27th of July we saw freshes, and from the 27th of July to the 21st of August we were pretty clear. Then after that time we were never clear of it again; the river was full of freshes after that.

6103. Till about what time?—Till we stopped. It did not come away in great floods, but there were always freshes out.

6104. The effect of it was perceptible on the water of the river?—Yes.

6105. Was it muddy?—No, a brown colour.

6106. Did the water look pretty clear in your tanks?—Yes.

6107. Could you see down to the bottom?—No, it was too brown for that; but it was pretty clear of mud.

6108. Chiefly the peat stain?—Yes.

Mr. J. Barlow.

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Mr. JOHN BARLOW, sworn.

6109. (*Chairman.*) Are you keeper of the public baths and wash-houses erected by the corporation in Sandgate, in the New Road?—Yes.

6110. How many years have you been so?—Five years.

6111. Ever since their establishment?—Yes

6112. (*Mr. Simon.*) You had opportunities of observing the quality of the water supplied at the baths during the autumn of 1853?—Yes.

6113. Did you observe any difference in the quality of the water supplied during July, August, and September 1853, and the ordinary quality of the water?—It was worse in July than on any previous occasion, very thick.

6114. Did as many people bathe in July and August last year as usually bathe in those months?—We had not as many this last year, but I do not think it was owing to the water itself. I think the weather was not so warm this last year as it was in the previous year.

6115. Did you have occasion to visit the room where the water is boiled for the hot baths?—Yes.

6116. Did you ever notice, in that room, any unpleasant smell arising from the water?—No, not from the hot water.

6117. Did you ever notice that the cold water had an unpleasant smell?—I never noticed that it had any unpleasant smell, but when the water was so very thick, if I took a little of it into a glass, there was not a very pleasant ta ste. The taste was bad after it had stood in the glass, after it had been drawn from the tap.

6118. How long?—A single hour would do it, that is, when the water was so thick.

6119. Can you say at all what it tasted of?—No; I do not pretend to be a chemist. I could not say what it tasted of. The taste was not pleasant.

6120. You would know if it tasted of salt?—It tasted more of soda than anything else, I think. It had a soft taste.

6121. Did it taste as if there was any rotten or putrid matter in it of any kind?—No.

6122. (*Chairman.*) How long did the water continue bad; you have said that in July it was very bad; was it bad from July till September?—No; it got better after that. As soon as the water was changed, when the water came from the Whittle Dean, after they had done pumping from the river, the water was generally very clear. It was only upon certain occasions that the water was thick.

6123. Have you ever heard any complaints as to the arrangements in the baths or wash-houses?—No.

6124. Have you a mangling room attached to the baths and wash-houses?—There is no mangle attached to them.

6125. Have you never heard any complaints upon that point?—I have heard no complaints from any individual, only thus far, that people who come to wash their clothes have sometimes said that if there had been a mangle there, it would have been much better, that is all.

6126. It has been alleged to us that other complaints have been frequently made with reference to certain arrangements at these wash-houses; you yourself have never heard of them?—No; there is nothing, I think, of any consequence that I can recollect.

6127. (*Mr. Arnott.*) Have you any return of the number of people who have bathed there?—Yes. I did not make it out for this purpose.

The witness delivered in the same.

6128. (*Chairman.*) The use of the bath seems to have declined from the year 1850 to a slight extent?—Not the warm baths; they have increased; but the plunge bath has decreased. We had not any shower baths the first year.

6129. Then the only point in which there has been any serious decrease has been the use of the plunge bath; and the sum derived from it seems to have been very trifling?—Yes; there was a considerable decrease.

6130. What is the reason of the decrease in the number of the warm baths between 1852 and 1853?—Some other baths had been established, and they operated upon it a good deal.

Mr. F. Dodds.

Mr. FOSTER DODDS, sworn.

6131. (*Chairman.*) We have had rather conflicting evidence given before us as to the quality of the water during the late epidemic; and we thought that where water was used in large quantities, as in subscription and public baths, the keepers of those places would certainly have some little knowledge of the matter. You are, I believe, the keeper of some public subscription baths which have existed how long in this town?—I believe nearly upon twenty years, but I have only been fourteen months there myself.

6132. You were keeper during the recent epidemic?—I was.

6133. Did you notice anything with regard to the water at any time in the course of last year?—Not in particular, except its being discoloured.

6134. Did you never notice it thick?—It varied very much. Sometimes it was thicker than at other times.

Mr. F. Dodds.
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6135. What is your opinion of the quality of the water; was it good, bad, or indifferent?—So far as I was concerned in using it as a bath, it answered the purpose very well.

6136. (*Mr. Simon.*) How did it answer as a drinking water?—I cannot speak to its effects. I used it myself.

6137. Did you like the taste of it?—There was no disagreeable taste that I felt. Its appearance was more so than its taste.

6138. (*Chairman.*) When you boiled the water, did you ever smell anything offensive?—No, nothing particular.

6139. (*Mr. Simon.*) Do you ever have any unpleasant smell from it?—No, not that I can say.

6140. (*Chairman.*) Did you notice any change in the water if it were allowed to stand for an hour or so after it was drawn?—It settled a good deal. There was a sediment at the bottom.

6141. Did you notice anything further?—Nothing further.

6142. (*Mr. Simon.*) If you left any considerable quantity of water in a bath, did you notice whether it had any disagreeable smell after a few hours?—No, I never observed it; in fact, it never had time to stand in the baths.

6143. (*Chairman.*) Did you ever happen to draw any into a pitcher or a glass?—Yes, we frequently drew it into glass bottles; and when it got so much discoloured I got pump water from a neighbour.

6144. Had you been accustomed to drink it before then?—Yes, I had myself.

6145. And you discontinued it?—Yes.

6146. But you never noticed any bad smell?—No.

6147. Nor anything particularly bad in the taste?—No, not that I complain of.

6148. (*Mr. Simon.*) Did any of the people in your house complain of the taste of it?—No, none.

6149. Or of the smell?—No.

6150. (*Chairman.*) Nor any people that used the baths?—No; I never heard any complaint, nothing but of its being discoloured. There were complaints about that, although they took the baths at the same time.

6151. Was there any falling off in the use of the baths during the months of July, August, and September last?—Very much indeed in September.

6152. I mean as compared with previous years?—I am not aware of that. I have only been here fourteen months.

WILLIAM WOODS, Esq. and Mr. THOMAS HEBRON, sworn.

W. Woods, Esq. and Mr. T. Hebron.

6153. (*Chairman to Mr. Woods.*) You are the chairman of the board of directors of the gas company?—Yes.

6154. (*To Mr. Hebron.*) And you are secretary to the gas company?—I am.

6155. Was that company established under a local Act of the year 1846?—(*Mr. Woods.*) No, it was not.

6156. Under what Act then?—No Act of Parliament at all.

6157. By what authority then do you exist?—The company is a subscription company; and from the authority of the corporation we had privilege to break up the streets to lay the pipes. It occurred a great many years ago, as far back as 1818.

6158. Is that the Union gas company?—Yes; the Newcastle and Gateshead Union gas light company.

6159. I have in my hand a local Act of the year 1846, entitled "An Act for lighting "with gas the borough of Newcastle-upon-Tyne, and for varying and extending the "powers of the several Acts for regulating and improving the said borough." That Act authorizes the establishment of a new gas company of which the town council were to be charged with the formation; and also authorizes them to buy up a certain old Union gas company, and so on?—Yes.

6160. If I understand you then, the provisions of that Act have never been carried out?—They have not.

6161. (*Mr. Arnott.*) There were several conferences between the directors of the gas company and the corporation upon the subject?—There were; the subject was ably discussed in the council of Newcastle, but there has not yet been any arrangement for the corporation taking the works.

6162. (*Chairman.*) The power to purchase the Union gas works contained in the 28th section of this Act in fact has never been made use of?—It has not.

6163. What we wanted a little information from you about was with reference to the allegations which have been made before us as to your gas being bad?—Thinking it would be satisfactory to you to have an answer to those allegations, I requested the superintendent or the manager of the works to be here, and also a chemist of great celebrity who has particularly attended to the manufacture of the gas in our establishments, and also in another establishment in the neighbourhood, certainly a private gas-work, but formed by perhaps some of the most eminent chemists and manufacturers of the day; that is, Messrs. Lee and Company, of the Felling alkali works, the greatest alkali works we have. They

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have turned their attention very much to the manufacture of gas, certainly upon a comparatively small scale; they have not perhaps more than twelve or fifteen retorts, but still quite sufficient to try every requisite experiment to produce perfect gas. The chemist whom I wish to call here has been in constant communication with Messrs. Lee and Company, and he has also taken out a patent for the removal of the ammonia. As far as regards the gas of Newcastle, I do not think there is any product that we have to contend with more than ammonia. It is entirely destitute of sulphur. We have succeeded in that completely. In the ammonia we have not; but that is very much mitigated, and I believe that ammonia is the cause of the deterioration of the books of libraries. It is the case in all libraries where gas is used, and where there is not a very perfect ventilation; and also where the regulation of the flame is not attended to so as to effect a perfect combustion. I believe there is a peculiar affinity between ammonia and leather, which softens the leather and destroys it in the end. I believe that in the British Museum and many other libraries that I know of in the kingdom, that is the effect.

6164. Is that gentleman here?—He is.

6165. We have had allegations to the effect that, on the contrary, the presence of sulphur was very discernible during and after the combustion of the gas, so that by wetting your finger, and passing it along the binding of the books, you could taste the sulphuric acid; and that in the fluid condensed in the ventilation pipes above the gas burners the presence of sulphurous acid was obvious?—That might be the case if the flame was disregarded. If, instead of a flame of two or two and a half inches to a large argand burner, it was permitted to flare up to the extent of six or seven inches, I could not answer for the consequences.

6166. (*Mr. Simon.*) You believe that with careless burning it would produce sulphurous acid?—I am not sufficient chemist to give an opinion upon that point; but that question will be completely answered by Mr. Losh, who is a professional man.

6167. (*Chairman to Mr. Hebron.*) Are you cognizant of any complaints having been made to the company with reference to the quality of the gas?—Very few. I should say that nineteen out of twenty of the complaints made to the company about the gas were more as to quantity than quality. Those generally arose from local defects in the service pipes.

6168. (*Mr. Simon.*) Can you hand in an analysis of your gas?—(*Mr. Losh.*) I have no analysis; I never did anything beyond testing for ammonia and sulphur.

6169. What was the effect of your testing for sulphur?—From sulphuretted hydrogen it was quite free. That point will be determined more minutely by testing the gas now.

6170. At present?—I should say so. It is a simple thing; it is so simple to test for sulphuretted hydrogen that it is done in a moment.

6171. (*Chairman to Mr. Hebron.*) Am I to understand you to say that you have ever had any complaints as to quality?—I have.

6172. About what time?—I should say we have always had complaints of the quality.

6173. You mean occasionally, from time to time?—Yes; but I do not mean to say that those complaints are correct. Many people complain of the bad quality of the gas in consequence of its smoking a great deal. Now, it is a well known fact that the richer the gas, the more smoke is given off, if it is not properly consumed; and parties are often very much surprised indeed when I tell them so.

6174. (*Mr. Simon to Mr. Losh.*) Have you any analysis of the products of combustion of this gas?—No, I never made any analysis of the gas. I never did anything beyond testing for ammonia and sulphur.

6175. On many occasions have you done that?—Frequently.

(*Mr. Hebron.*) As a general thing, I should say that in nine cases out of ten where parties have complained of the quality, it was not of any impurity which they could detect in the gas, but that it smoked so much. And we generally found that it arose from some imperfection in the burners, which was easily rectified.

6176. (*Chairman.*) It arose, in your opinion, from an improper consumption of the gas?—Yes.

6177. But you never had any analysis of the gas, or of the products of combustion, made to ascertain the fact?—No. That properly belongs to the superintendent's department.

6178. Has he?—I do not know. I know he has been engaged in chemical experiments; but, it being totally independent of my duties, I do not pay much attention to it.

6179. Could you put in any statement of the means which you use in your works for the purification of the gas?—Mr. Losh can inform you completely on that subject, and the superintendent.

6180. (*Mr. Simon.*) How do you dispose of your refuse?—We dispose of all the ammoniacal liquor to Messrs. Lee and Company, now Pattinson and Company, at the Felling chemical works.

6181. And the other refuse?—The tar is manufactured into asphalt and into pitch.

6182. Where?—In Gateshead. The works belong to the company, but they are let to a tenant.

6183. Do you hear of any complaints of nuisance in that neighbourhood from those works?—I never heard of any.

6184 (*To Mr. Woods.*) Have you?—Never.

(*Mr. Hebron.*) They have a glue manufactury close alongside of them.

(*Mr. Woods.*) That is more offensive a good deal.

6185. (*To Mr. Hebron.*) You think that would cover the smell?—I think so.

6186. (*Chairman to Mr. Woods.*) Is there any other point with reference to our inquiry on which you would wish to offer us any evidence?—I do not know of any. We are here prepared to enter into any explanation that may be required on the part of the gas company.

6187. I mean apart from the question of the gas, are there any other points of our inquiry on which you would like to offer evidence?—I scarcely think there are, because all your inquiries, I think, have been so very well answered, and generally by parties much more competent than myself. I have my own opinions as regards several matters. I do not think that the cholera can be ascribable to the Tyne water; and I do not think that Newcastle can be fully and amply supplied with water but by resorting to the Tyne. I may say that for the last thirty years I have been intimately connected with water-works in Newcastle, but certainly not with the present company; and my impression is, that if the water had been drawn from the Tyne above the influx of the tide, no complaint either of quantity or quality would ever have been made in Newcastle against the water company. That is my impression. There is a place called Newburn Haughs, where there is a natural filter bed of fine gravel, the extent of which was never ascertained. The water might have been drawn at that point from the Tyne, and I am quite satisfied that no complaint would ever have originated against the company either as regards quantity or quality of water. As regards the men employed in the gas works, the duties of the firemen are certainly very laborious. They have rest occasionally, otherwise they could not get through the duties. The drawing of the retorts, and the charging of the retorts, requires very great attention. And when an alarm as to the cholera took place (in fact, there was too much cause for it), we were afraid of the men getting alarmed; and the superintendent, by the direction of the medical adviser, was allowed to introduce a certain quantity of whiskey into the water that they drank. This was continued for a length of time. It satisfied the men, and I have no doubt it was beneficial, because the men rush from the retorts in a heated state to the first cold water they can get to. When the cholera appeared, a medical man was immediately consulted and retained especially for the works, and any case of diarrhœa was at once attended to. We had only, I believe, one fatal case. The man recovered from the first stage of it—I believe the most dangerous stage—but when he got home he had a drunken wife, who entirely neglected him; she locked the door, and would not allow anybody to come near him, and he was found dead on the floor, and the woman in a state of intoxication. That man might have been saved with ordinary care and attention.

6188. I forget the number of your men?—240 altogether we have in our employ.

6189. Whereabouts do your men live?—They live in various places; some in the works, and some far off. There is one thing which has struck me as very important. In Sandgate we have one of our largest gas holders, and there is a range of purifiers and condensers, which are now very extensive, there being an area of at least 6,000 cubic feet for purifying purposes; the means of purification in two years have increased from 1,400 feet to upwards of 6,000. Certainly the manufacture of gas has increased very much, but not in a relative proportion at all; but I wish to explain that, on one side of the works, is this large gas holder; near this gas holder, only divided by a narrow, filthy lane, of four feet wide, is our range of purifiers and condensers. Now it so happens—and I have my authority from Dr. Charlton (I called his attention to this block of buildings between the two, the breadth being only four feet from the front of these houses to the range of purifiers)—that there was not a single case of cholera, or even diarrhœa, in this lane.

6190. What is the name of the place?—I think it is almost nameless, for I never heard a name to it; but there is one miserable place which I saw almost every day, and I dreaded serious effects from that place. It was inhabited by some very low Irish. The landlord himself had such a dread of one part, a sort of back room, of these premises, that he had it fastened up; and these people who took the other part contrived to open it, and they absolutely let this place, which the landlord did not think was fit either for man or beast, for 1*s.* 9*d.* a week, and it was crowded frequently at night; but still, notwithstanding this, there was not a single case of diarrhœa or cholera in that block of buildings.

6191. How many families do you think there were?—I should think altogether there would be fourteen or fifteen families in the line of buildings, perhaps more.

6192. You are not intimately acquainted with the state of the premises?—So far as seeing them four or five times a week.

6193. From what you saw of the outside?—Yes, and I got Dr. Charlton to go into this miserable place. It is now razed to the ground. Whilst this block of buildings, which we thought peculiarly and dangerously situated, was exempt from disease, two lanes further to the west some distance contributed very many cases; so that we congratulated ourselves that what arose from gas was rather disinfective than anything else.

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6194. Have you made yourself personally or intimately acquainted with the relative states of the two blocks of houses, so as to enable us to obtain accurate information upon that point?—I could not answer that question accurately.

6195. (*Mr. Simon to Mr. Losh.*) Will you mention the result of the experiment which you have just made?—We have tested the gas for sulphuretted hydrogen, and have not found a trace. Dr. Richardson was present.

6196. Do you believe that, from any other cause, sulphuric or sulphurous acid would be formed in the combustion of that gas?—I do believe that a small portion of sulphurous acid would be formed from the decomposition of the sulphuret of carbon, which always exists. I believe no gas is free from it.

6197. (*Chairman.*) Is it a common thing to have it to such an extent as to have the joints of the taps and cocks corroded, and so on?—I have never observed it. I should think that it is almost certain to be the case where the water condenses in the pipe. There always will be a certain portion of water condensing in the pipe, and of course the joints will rust.

6198. We have had evidence from one or two gentlemen to the effect that these taps and cocks appeared to be corroded?—I should think it a very likely case to occur. All gas does condense upon the pipes, and a slight corrosion will take place, especially it ammonia is present, which it is.

6199. Is it a usual thing?—I cannot speak as to that, for I never observed it; but I should think it very likely to be the case.

6200. (*To Mr. Arnott, superintendent of the gas works.*) What is your impression?—At the time when one of the valves broke, we had a good many complaints.

6201. Have you ever known similar complaints at any other time as to that effect?—No.

6202. (*Mr. Simon.*) What do you do with the refuse of your lime-purifier?—We give it away to any farmer that chooses to come for it, and when they do not come for it we cart it away.

6203. Where, in that case, do you cart it to?—To the out part of the town.

6204. In what neighbourhood?—It is at a part called Shield Field.

6205. Do the people there like it?—I never heard any complaint, but there is very seldom anything taken there because mostly the farmers take it away.

6206. (*Chairman.*) Was not the refuse from the gas-works at one time thrown a good deal into Pandon Dean somewhere?—Yes, where the railway goods station now stands.

6207. (*Mr. Simon.*) With the refuse of your lime-purifier?—Yes, and likewise the dross from the works themselves.

6208. (*Chairman.*) At that time was not there a good deal of complaint?—No; there was no person near it that had cause to complain.

6209. (*Mr. Simon.*) But did they complain?—Sometimes they complained in the morning; it was generally away before they were up of a morning. When we found any complaint, we generally took it away in the morning.

6210. Was it with the knowledge of the authorities of the town that you used this material to fill up that space?—I do not think we had such authority; merely the person who had the place to receive deposit allowed the deposit. We paid twopence per load.

6211. And lately you have taken to empty it on to the Shield Field?—Very little, because the farmers mostly take it away.

6212. How long has that been the case?—About five months now.

6213. Do you send it in cart loads?—Cart loads.

6214. Can you let us know how many cart loads were discharged in this neighbourhood during the year terminating on the 1st of September 1853?—We did not keep the lime distinct from the other rubbish; as a load was taken away we did not care what it was.

6215. Can you tell us how many cart loads of rubbish you sent away from your works to be carted to this place?—The books would show.

(*Mr. Woods.*) The lime would not be a hundredth part of the rubbish which is produced at the works. There is all the refuse from setting up the retorts, the old brick work, and the old lime that is connected with brick work. The lime from the purifiers would not be a hundredth part of the rubbish generated at the gas-works; there are all the ashes too.

6216. (*To Mr. Arnott.*) Shall you be able to tell us about what proportion of that carting of rubbish came from the lime-purifiers?—No; because we kept no distinct record.

6217. But during that time the refuse of your purifiers habitually came to this particular place?—No; we had a great part taken away by the farmers. We have used a very great quantity of it over again with the purifiers.

6218. (*Chairman.*) Is there any other point on which you would like to make any statement?—None.

6219. (*To Mr. Hebron.*) Have you anything else to say?—I wish to clear up one point. There has been no refuse lime deposited in Pandon Dean for some years, I believe.

6220. (*Mr. Simon.*) But in Shield Field?—In Shield Field, there has.

6221. Close by Pandon Dean?—No, it is a considerable distance from where we formerly deposited.

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6222. In the line of Ridley Villas?—(*Mr. Woods.*) It is rather more eastward. In the first place, the quantity of actual lime used is very easily ascertained; a considerable quantity of that is sold, when we have used it, to the farmers; it is only when the works are crowded and encumbered that a few cart loads are taken away to make room, it is not the general practice at all, because the farmers will give fourpence a load for it, sometimes sixpence; and I expect that it will prove still more valuable.

Mr. William Septimus Losh, examined.

Mr. W. S. Losh.

6223. (*Chairman.*) Have you on several occasions analysed the gas here?—Repeatedly, both for sulphur and ammonia, with a view to obtain the ammonia from the gas.

6224. What has been the result of your analysis?—I have always succeeded in obtaining a large quantity of ammonia, but very seldom any sulphuretted hydrogen. Sulphur does exist in the gas as sulphuret of carbon, but not as sulphuretted hydrogen. I have hardly ever detected its presence.

6225. (*Mr. Simon.*) To the ammonia and the presence of water you attribute the corrosion of the book bindings?—That I certainly should.

6226. Not to sulphurous or sulphuric acid?—I think if that were present it would assist; and I believe it always is present from the sulphuret of carbon, as I stated before; but I believe that the ammonia has much more action on the leather than sulphur.

6227. They would not of course be existing in the presence of one another without being combined together?—They would exist as a compound, either as a sulphate of ammonia or a sulphite of ammonia.

6228. Would sulphate of ammonia corrode book covers?—I should think it would.

6229. (*Chairman.*) Have you ever found any appreciable quantity of sulphur in it?—Never; but I wish it to be understood that I never tested the gas, except with the view of detecting sulphuretted hydrogen and ammonia. I have always obtained ammonia in very considerable quantities, but I never detected, with the exception of one or two slight traces, sulphuretted hydrogen in the gas. The products of combustion would decompose the sulphuret of carbon which exists in all gas.

6230. (*Mr. Simon.*) What will be the products of combustion in this gas?—I believe first of all sulphurous acid, which would unite with the ammonia and form sulphite or sulphate of ammonia.

6231. Do you conceive that to be a good gas which would leave much ammonia as the result of its combustion?—I believe that all gas would.

6232. In a large quantity?—It would vary according to the coal used; various qualities of coal contain more or less ammonia.

6233. (*Chairman.*) Can you compare the gas here with the ordinary gas in London or elsewhere?—I cannot; I have never made any experiments upon the London gas, nor have I made any upon any gas made in London; but I have with the gas made at Ulverston, which is made entirely from cannel coal; it contains fully as much ammonia as the gas of Newcastle.

6234. And sulphur?—Sulphur about the same.

6235. To your knowledge there is nothing unusually noxious about the gas?—I should not think so. I do not profess to know very much about it, more than that I have been working at it occasionally; but I should say the gas here is pretty equal to the ordinary run of gas that I have seen, either in Carlisle, Durham or Ulverston. In those three towns I happen to have seen a good deal of the gas, and I should say that the gas here is fully equal to it.

6236. Is there any other point upon which you would wish to make any statement?—No, I think not. My impression is, that the gas here is very much the average gas of the kingdom. I do not think that the system of purification is different from what it is in any works that I have seen. It is simply to pass it through dry lime in sufficient quantities to remove all the sulphuretted hydrogen.

6237. Are you acquainted with the works here?—With almost every work on the river I am acquainted.

6238. You do not see in the gas works, to which we are alluding, any deficiency of the proper means of purification?—Not at all; I have always found them anxious to improve the gas. I have been with Mr. Arnott their manager frequently, and have been consulted by him as to the means of improving or purifying it; and in consequence of that, we have hit upon a system of obtaining the ammonia, which I expect will be very efficacious.

6239. How many months or years have you been so engaged?—For the last two years I have been more or less in the works.

6240. Consulting for the purpose of improving the state of the gas?—Yes.

Mr. G. Hunter.

30th Jan. 1854.

Mr. GEORGE HUNTER, sworn.

6241. (*Chairman.*) You are a member of the town council and of the board of guardians?—Yes. In the first week of August 1853 a gentleman was over here from Hamburgh, and he stated that cholera had broken out in Hamburgh very fearfully. I told him I was obliged to him for the information, and, as a member of the board of guardians, I went direct to our inspector of nuisances, and told him that he was to prepare and get the whole of the lanes and the short streets washed out, and I think you will find in our books that he commenced doing it. That was before we had any case of cholera. I likewise examined the fruit that had come from Hamburgh, and found a great deal of it bad. Then I went and spoke to Mr. Little, the inspector of provisions, and he went up and down the streets, and I think he collected about twenty baskets, belonging to women that sell fruit in the streets. They were taken before the magistrates, and condemned. I asked him for a return, and he presented me with this (*producing the following paper*):

To the Authorities of the Borough of Newcastle-upon-Tyne.

Gentlemen,—I hereby beg to inform you that, during the months of August, September, and October, by virtue of my office as inspector of provisions, I seized large quantities of fruit, and by order of the magistrates caused the same to be destroyed, in consequence of the prevalence of cholera. I was also instructed by many members of the board of guardians, but particularly by Mr. Councillor George Hunter, who is also a guardian, that I was to be most vigilant in detecting and destroying whatever I found to be impure or unfit for food. I attended the Hamburgh and Rotterdam wharves, and seized a quantity of plums, which I caused to be destroyed. Other articles of provision were also seized and brought before the magistrates, and dealt with according to law.

I am, Gentlemen,
Your obedient humble servant,
Newcastle-upon-Tyne, 7th January 1854. RALPH LITTLE.

(*Mr. Hunter.*) About a week afterwards a gentleman of the name of Brown told me that one of his sons had bought, I think, a pennyworth of pears; they were selling at that time thirty a penny of those pears; and it had given him the cholera. This was about a week or ten days afterwards, perhaps more; say fourteen days.

6242. (*Mr. Simon.*) Did the boy die?—No. It would be the beginning of September. I spoke to the mayor, and these women were prohibited selling the fruit.

6243. (*Chairman.*) That was after the first cases of cholera?—Yes; and these women were prohibited selling fruit in the streets. Mr. Little went down to the boat, and this fruit was sent off to Scotland. In the beginning of September (the board meeting was on the Friday) we wrote to the board in London.

6244. The General Board of Health?—No, the Poor Law Board. We stated that there had been a few cases of cholera, and they wrote back to state that they hoped it would not be extensive. Our chairman was away; the vice-chairman and I went up on the 6th of September to our board-room, and told the clerk to write to our medical officers and our relieving officers, that whatever assistance was necessary they were to get until the Friday when we met. We met every Friday.

6245. What was the date of those letters?—The 6th of September.

6246. Was that addressed to all the five medical officers?—To the whole of them. This is a copy of it.

The witness delivered in the same, which is as follows:

6th September 1853.

Dear Sirs,—In reference to your report as to the existence of cholera in your district, I beg to intimate that, until the meeting of the board on Friday first, should any cases of cholera occur where nurses, clothing, &c. may be required, the relieving officers have instructions immediately to provide the same upon your order. In the mean time I shall be obliged by your reporting to me any new cases which may occur.

Mr. William Winship. I am, &c.
Mr. William Newton. GEORGE FORSTER.

A similar letter was on the same day sent to the other medical officers, Mr. Harvey, Mr. M'Nay, and Mr Sang (who had not reported any cases of cholera in their districts).

Copy of letter to Relieving Officers.

6th September 1853.

Dear Sirs,—In case you receive any application for nurses, medical, or other assistance, in cases of diarrhœa or cholera, you are authorized to provide such assistance, and whatever else the medical officers shall recommend, without waiting for instructions or confirmation of the board. G. F.

To the Relieving Officers.

Mr. G. Hunter.

30th Jan. 1854.

(*Mr. Hunter.*) That was before there were even cases in some districts. I merely put these in to show that the board of guardians were fully alive to the necessity of the case.

6247. By whom is the inspector of provisions appointed ?—By the corporation.

6248. Do you know how long he has been in office ?—I think they are changed every year.

6249. But there is one every year ?—There are two. I think the inspectors of police take it.

(*Mr. Town Clerk.*) Generally the same persons are re-appointed.

6250. (*Chairman.*) Among the many communications which I have received, I have received one relating to the very extensive sale, as it is stated, of unwholesome provisions; but like a good many other complaints that have been alleged I do not know that it is worth while to go into it at length; having understood that there was always an inspector of provisions ?—(*Mr. Hunter.*) There are two, and they are very vigilant.

6251. Is there any other point on which you have any evidence to offer ?—I should like to make a statement on the average number of deaths in this town. As a member of the board of guardians I found after I had only been so about a year and a half or two years, that a number of Irish and Scotch people come here, when they are disabled from working in the country. They put themselves upon us. They come when between sixty and seventy, when they can do nothing in the country, and of course you are either obliged to give them out-door relief or send them to the workhouse. If you take them to the magistrates, the magistrates say they are too old to be removed. They cannot tell their parish. We have hundreds of these people who come and stay three or four years with us and die, which increases the number of deaths in this town considerably.

Mr. G. Forster.

28th Jan. 1854.

Mr. George Forster, further examined.

6252. (*Chairman.*) I presume we may regard you as representing the board of guardians ?—Yes.

6253. The first action of the board of guardians with reference to sanitary matters, I suppose, was founded upon the Nuisances Removal Act, passed in the year 1848 ?—That is the only Act that we were called upon to administer.

6254. And it was in consequence of that Act that you began to operate ?—It was.

6255. (*Mr. Simon.*) In October 1848, sanitary committees were formed for the eastern and western districts respectively ?—Yes.

6256. And on the recommendation, I presume, of those committees, the board of guardians appointed inspectors of nuisances ?—They did.

6257. For about a year you continued to have two inspectors of nuisances, one for the eastern and one for the western district, acting under your direction ?—We did so.

6258. At the end of about a year, somewhere about the autumn of 1849, you discontinued one of your inspectors of nuisances ?—We did so.

6259. And from that time continuously onward till September 1853, you have had one inspector of nuisances always in operation ?—One only; but different persons occupied the post during that interval.

6260. And that one person was always in action as an inspector of nuisances ?—Always.

6261. In 1853, on or about the 15th or 16th of September, under pressure of the recent epidemic, you appointed three additional inspectors of nuisances ?—Three at least, I believe.

6262. We have the books of three ?—Yes.

6263. Who continued in operation for a week or ten days, until the corporation undertook the duty of administering the Act ?—That is so.

6264. (*Chairman.*) Did the board of guardians originally undertake the carrying out of that Act after any conference with the town council ?—I do not remember the circumstances under which they undertook the carrying out of that Act. I did not then hold the office which I now do. It was not until 1851 that I became the clerk of the guardians.

6265. What we wanted to know was, why the board of guardians, with an inferior staff, undertook the execution of an Act, the execution of which is, in the first place, we may say, suggested by the Act to the town council, whose staff is and might be expected to be so much superior ?—The chairman will recollect the whole of the circumstances under which they undertook the carrying out of that Act. I have no precise recollection of the circumstances. I am not quite sure that I was connected at all with the board at that time, either as a guardian or otherwise.

Vide Memorial, p. 387.

6266. You do not know, then, what circumstances led to it ?—I do not.

6267. (*Mr. Simon.*) The board of guardians have no power for the prevention of nuisances, I believe ?—None.

6268. It is in respect of the removal of nuisances only that they have any authority ?—And only under that Act.

6269. The sort of prevention of nuisances which would consist of making regulations for the systematic emptying or cleaning of middens and privies, would lie out of their province ?—Quite so.

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6270. You have operated over the whole area of the parliamentary borough?—Not only over the whole parliamentary borough, but extending a little beyond it. The union limits extend a little into the county of Northumberland.

6271. But at all events you have included the borough and townships?—The entire municipal borough.

6272. The old municipal borough and the townships which are now included within the borough boundary?—Yes.

6273. (*Chairman.*) Do your books contain records of the proceedings over the whole time?—I believe they do.

6274. If you take the occurrence book, you will find that it begins on the 10th of October 1848?—Yes.

6275. Is there any entry between the 8th of January 1850, and the 2d of September 1850?—It would seem not in this book.

6276. Can you tell us whether the operations of the board of guardians were continued during that period?—I have no doubt they were, but I cannot account for the *hiatus* in the book of occurrences.

6277. You will see that that book ends, I think, on the 10th of February 1851?—Yes, it was before the board on the 14th of February 1851, I see.

6278. There is another gap from 12th February 1849 to 10th August 1849. You were not yourself then, as I understand, in the service of the guardians, so that you cannot, perhaps, explain the reasons of that?—No.

6279. Just look at that book. Do you find that on the 16th of October 1848, you had occasion to give notice to the corporation for three distinct matters, namely, two dirty lanes and a filthy gutter?—It appears to be so.

6280. Proceed to the 25th of October. Do you there find the corporation complained of for a large midden nuisance?—That is so.

6281. The 30th of October for building an ash-pit certified as a nuisance by Drs. Charlton and Embleton?—It appears to be so.

6282. (*Mr. Arnott.*) Where is that?—"A new ash-pit in the front street of Sandgate; "the same has been examined and certified by Dr. Charlton and Dr. Embleton."

6283. (*Chairman.*) Proceed to the 6th of November. Were the corporation again complained of in respect of some middens and a filthy gutter?—That is so.

6284. And on the 20th of November for a dirty lane?—That is so.

6285. On the 6th December they are complained of for "lanes filthy for want of sweeping?"—"Lanes leading from Butcher Bank to the Quay side, namely, Grinding "Chare, Blue Anchor Chare, Palister's Chare, Pepper Corn Chare, and other adjoining "lanes in a filthy condition in consequence of not being properly and more frequently "cleansed."

6286. On the 8th of January 1849, the corporation are complained of for a filthy piece of ground?—"Having a portion of unoccupied ground adjoining Mr. Crawhall's "ropery in a filthy condition, with ashes, night soil, and other matter."

6287. On the 22nd of January 1849, for lanes filthy from the want of more frequent cleansing?—That is so.

6288. On the 24th of August, were they complained of for a common sewer which was open?—Yes, beneath one of the railway arches.

6289. On the 31st of August the corporation were again complained of for lanes filthy from want of more frequent sweeping?—From Sandgate to the New Road.

6290. On the 6th of September?—Yes; "unoccupied ground situate in front of Quality "Row, on which there is a stagnant pool of filthy water and other matter, which is much "complained of by the inhabitants in that neighbourhood."

6291. Look at section 104 of this Local Act of 1846, which empowers the corporation to cause stagnant pools to be drained and filth to be removed, and see whether you do not think it would have enabled the corporation to remove that nuisance themselves?—I certainly should think that under that clause such a pool of standing water might have been removed.

6292. Proceed to the 13th of September. I think the corporation are there summoned for two filthy grates?—"Having two public grates which are much complained of by the "inhabitants adjoining; one situate at the foot of Craig's Alley Stairs, the other in front "of Mr. Gordon's, Stock Bridge, from which an offensive effluvia arises in consequence of "night soil being deposited thereon."

6293. And on the 17th of September?—Yes.

6294. Do you find the corporation then summoned for anything?—"With having an "accumulation of night soil and other filthy matter under the staircase situate near the "Folly Wharf, Sandgate." I am not aware whether that is corporation property or not.

6295. You merely find it there stated that notice was given to the corporation, it being alleged to be their property?—Yes.

6296. On the 29th of September, are the corporation complained of for anything?—"With having the public privy in the Stock Bridge in an imperfect condition, also the "public privy in the Burn Bank in a filthy condition."

6297. Go to the 11th of October. What do you find there; the corporation are complained of for what?—For "having several public grates which are much complained "of by the inhabitants in consequence of night soil being deposited therein and no water "to carry it away. The same are situate at the foot of Pilgrim Street and in Silver Street; "also the whole of the public privies want washing out with hot lime."

6298. Any other matter of complaint against them the same day?—Yes.

6299. What was that complaint?—"With having the ground at the lower end of the "Corn Market in a filthy condition with night soil."

6300. On the 24th of October?—"With having the public thoroughfare in a filthy "condition; the road between Adelaide Terrace and Shield Street."

(*Mr. Arnott.*) That is out of the borough, I think?—I believe that is out of the ancient borough.

6301. (*Chairman.*) The 19th of November?—On the 19th of November "with having the entrance into the old Market Lane from Pilgrim Street in a filthy condition, in "consequence of it being very much used as a urinal; and the pavement not being good it "becomes stagnant and causes a great nuisance to the adjoining inhabitants;" that is the complaint.

6302. Then there is a break in the record, from February to September 1850. Look at the 25th of October 1850; are the corporation there complained of for anything?—"With having the lanes leading from Sandgate to the New Road, viz., Keel Entry, "Nag's Head Alley, and Hunter's Entry in a very filthy condition, arising from a quantity "of night soil and ashes, and which require to be more frequently swept."

6303. The 31st of December in the same year was there any complaint against them?—It does not exactly appear that this nuisance was complained of on the 31st of December. On the 8th of January 1851, I observe it is reported that the nuisance is removed.

6304. We will take it in that way. The corporation were reported as having removed the nuisance arising from a foul and offensive gutter?—"Situated near the Wesleyan "Chapel, New Road, also the grate of the public sewer which was covered with night soil."

6305. The 13th of January 1851?—For "a certain uncovered drain or common shore, "situate in Green Court, Newgate Street. The above is in a very filthy state, arising "from a large quantity of night soil; there being four privies, which empty their contents "into the aforesaid sewer, and is much complained of as a nuisance."

6306. Then on the 17th of October in that year they were complained of again?—There seems to be a hiatus here.

6307. You will find that perhaps in this other book. Look to the 17th of October 1851. Do you find any notice to the corporation there, with reference to any nuisance?—"Visited several of the lanes in Sandgate on Thursday last, which I found in a very "dirty and filthy state, there being a large accumulation of night soil and other filthy "matter. I will call the attention of Mr. Gibson the corporation foreman to the above "lanes and alleys."—Signed, "THOMAS JENKINS, Inspector."

6308. Then refer to the 9th of January 1852?—"I beg also to call the attention of "the Board to the filthy state of several of the lanes in Sandgate, which are not swept "by the corporation sweepers till nearly twelve o'clock in the day. Keel and Petrie's "Entry, which is the property of the corporation, is in a most filthy state; there being a "large accumulation of night soil and other filth close to the dwelling-rooms of several "of the tenants, so as to be a nuisance."

6309. The 23d of January?—"I beg also to call the attention of the Board to the "filthy state of Chapel Lane, Silver Street; there being an accumulation of night soil, "and filth, refuse, &c. in the above lane, which is seldom or never swept; the gutter is "in a very dirty state, so as to be a nuisance."

6310. Then in February, without further date, there is a reference to Cross Keys Entry?—Yes, I see. "Notice has been given to the town surveyor, in respect of the "filthy state of the Cross Keys Entry, head of the Side, on which there is an accumula-"tion of ashes, night soil, &c., so as to be a nuisance."

6311. Then on the 4th of June do you find any complaint against the corporation with reference to Liverpool Street?—Yes. I find that the town surveyor has had notice of the filthy state of Liverpool Street, in consequence of the carriage way being seldom swept by the corporation sweepers. "It appears that the above street is only swept once "a week. I will, as soon as possible, call the attention of the town surveyor to the "above complaint."

6312. The 30th of July 1852; for what are they complained of there?—Mount Pleasant, and Wall Knoll, and "a vacant piece of ground belonging to the corporation, "which is made use of as a place of deposit by different tenants living in that "neighbourhood; there being about fifty loads of manure. This place has not been "cleaned for the last four years, and then by the corporation."

6313. The 1st of October?—"I have visited the whole of the lanes on the Quay Side, "and Sandgate, and found them clean, except in front of the entries on the New Road; "there is an accumulation of filth and night soil there; this place requires sweeping "oftener by the corporation."

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6314. The 5th of November. Do you there find an entry implying that the guardians themselves had had occasion the week before to make some complaint against the corporation, relating to Bankside near the High Level Bridge?—Yes. "I also beg "to inform the Board that the nuisance, which was complained of by the Board last "week, on the Bankside near the High Level Bridge, has been removed. I served a "notice on Mr. Wallace, the town surveyor, and he accompanied me to the above place. "The accumulation of dung, ashes, and night soil has since been removed; he proposes "to erect an ash-pit so as to prevent any further nuisance."

6315. Have you the 11th of March 1853 in that book?—No; it only comes down to the 14th of January 1853.

6316. Take the other book then. Now, proceeding to the 29th of April, do you find anything there which Inspector Roberts reported?—Yes. Upon a piece of "vacant "ground immediately in front of the New Market, Clayton Street, there is an accumula- "tion of dung, manure, filth, refuse, and night soil, so as to be a nuisance; the property "belongs to the corporation."

6317. Take the 1st of July?—"I beg to inform the board that William Waterfall, "Alexander George Gray, and several of the inhabitants living in the Close, complain of "a large quantity of burnt corn, filth and refuse, in the building lately burnt down in "the Javel Group; the stench arising from the above is very offensive, and the fire "breaking out at different times is very dangerous to the adjoining property, so as to be "a nuisance to the health of the inhabitants. I served a notice on Mr. G. T. A. Smith, "agent for the North British Insurance Company, and he sent the fire engine and men "to put out the fire. About fifty loads of the burnt corn has been removed from the "premises; but these last three days the work has been stopped."

6318. Do you know by whom those cart loads were removed?—I do not.

6319. (*Mr. Arnott.*) Do you know whether the corporation had anything to do with that?—I do not.

6320. (*Chairman.*) On the 5th of August 1853, what do you find recorded?—A communication to the board, that the whole of the lanes upon the Quay Side, and Sandgate were in a filthy condition, there being an accumulation of ashes, filth, refuse, and night soil. "I have since made arrangements with Mr. Wallace, town surveyor, to have all the lanes "belonging to the corporation whitewashed with hot lime, and also the public privies "and watering places to be whitewashed out likewise."

6321. On the 19th of September 1853, in the height of the epidemic, what do you find recorded?—On that day, according to orders, the inspector "went to the corporation yard "at six o' clock, in the expectation of procuring lime to be taken down to St. Peter's, for "the purpose of covering an accumulation of ash, dung, &c., between Glass House Street "and Chapel Street, St. Peter's." "Served a notice on John Turner, occupier of premises "situate in a lane leading from Nelson Street down to the river Tyne, and immediately "adjoining Messrs. R. and A. Hopper's shipway, there being a large accumulation of dung, "filth, and other offensive matter lying therein, the property of the corporation."

6322. Do you find anything on the 19th of November 1853, in that book?—It seems to go no further down than the 23d of September.

6323. Refer again to the occurrence book under the date of the 25th of October 1848, in the then cholera time. Do you find that the corporation were then complained of?—On the 26th of October 1848, "with having a large midden, which is their regular "depôt for all ashes and other filthy matter, situated in Tyne Street."

6324. Is there any annotation there to show whether they at once complied with that notice, or whether they resisted it?—I see there is a note made on November the 20th, that the matter was heard before the justices on the 17th, and that the bench convicted the defendants, who paid 4*s.* with costs.

(*Mr. Arnott.*) That is the same midden as the one mentioned at Glass House Bridge. It is there mentioned as in Tyne Street.

6324A. (*Chairman.*) It is the same thing. We know but two instances, that I am aware of, of the corporation having actually resisted the carrying out of the law?—(*Mr. Arnott.*) Exactly; and that is one.

6325. (*Chairman to Mr. Forster.*) Referring to that book of reports made to the Sanitary Committee of the eastern district, do you find there a report by Mr. Gray, with reference to that midden in Tyne Street or at Glass House Bridge?—I do.

6326. Be good enough to read it?—"Mr. Gray reported that he had attended the "police office in the Manors, on behalf of this committee, on Friday last, on the occasion "of the hearing of the complaint of the inspector of nuisances for this district against the "corporation, for not removing what may properly be termed the 'monster nuisance,' "the depôt of manure at Glass House Bridge, which has long been very justly complained "of by the inhabitants of that part of the town. The case was heard before a large "bench of justices, who decided that the nuisance must be removed as soon as possible; "and in the mean time all deposits of manure made there must be removed within "forty-eight hours, and the costs in the case to be paid by the corporation, which was "done by Mr. Arnott, who appeared for that body."

6327. (*To Mr. Arnott.*) With reference to the other case of resistance, I have lost the date; there was one about a privy?—It would be a little after.

6328. However it is the fact, that on one other occasion the corporation resisted, as you may say, the execution of the law by the board of guardians, and had to be summoned before the bench of magistrates, who gave their decision against them?—Yes.

6329. (*To Mr. Forster.*) Referring to the occurrence book, under the date of October the 16th 1848, do you find there a statement of the medical men with reference to overcrowding?—"That the overcrowding of these lodging-rooms and other habitations "is, in the opinion of the medical men, a most fruitful source of disease; and that the "utmost cleanliness will not protect the lodgers when they are thus crowded together. "The medical men would strongly recommend that all the lodging-houses be placed, if "possible, under the supervision of the police, to the end that no more than a certain "number of lodgers shall be allowed to sleep in each room."

6330. Do you know whether those lodging-houses were then placed under the supervision of the police, by virtue of the powers of the 109th section of the Local Act of 1846?—I have no knowledge that it was so.

6331. But do you believe that it was so?—I would rather not express an opinion upon that, because I have no correct recollection. My impression I can give you, that it was not.

6332. Referring to the 23rd of October 1848, do you find a resolution there as to a deputation to the corporation?—"Resolved that a deputation wait upon the Town "Improvement committee on Wednesday, to solicit their co-operation in carrying into "effect the flagging and paving and draining the streets, and also removing the ashes, &c., "from various lanes and alleys."

6333. (*Mr. Simon.*) Turn over leaf and you will find, I think, what was done?—"The "deputation appointed to wait on the Town Improvement committee reported that they "had been courteously received, and that the committee promised to afford all the "assistance in their power to enable the guardians to carry into effect the provisions of "the statute under which they were acting."

6334. Have you found your labours faciliated since that period?—I cannot say that we have.

6335. (*Chairman.*) Referring to the 24th of November 1848, do you find a similar resolution, as to applying to the corporation?—"That the corporation be memorialised "on the subject of a general drainage throughout the borough, and that they be requested "to supply the board with a map of the present drainage."

(*The following copy of a Memorial was afterwards put in by Mr. Forster*).

To the Council of the Borough of Newcastle-upon-Tyne.

The memorial of the Board of Guardians of the Newcastle-upon-Tyne Union,

Respectfully showeth

That by virtue of the directions contained in the order issued by the General Board of Health, bearing date the 3d day of November last, this union is one of those named in the schedule to the said order, and being so specified, the guardians are thereby required to carry into execution and effect within this union the provision of the Nuisances Removal and Diseases Prevention Act 1848.

That your memorialists have accordingly proceeded, so far as their powers extend, to carry into effect the provisions of the said Act and the directions of the said order, but they find their exertions, especially as to enforcing a proper drainage, greatly impeded by a total want of sewerage in many of the streets within their jurisdiction, which cannot otherwise be kept in a clean and healthy condition.

That it would greatly facilitate the proceedings of your memorialists, if they could obtain the co-operation of your worshipful body in effecting a more efficient sewerage in the streets where there are no sewers, and if they could be furnished with a plan of the present sewers in the streets where the same exist, so that your memorialists could, in such streets, enforce a proper system of drainage therein.

Wherefore your memorialists respectfully request that your worshipful body will be pleased to take the premises into your consideration, and afford them therein such assistance as to your worshipful body may seem meet.

And your memorialists will ever pray, &c.

Sealed with the common seal of the union, and signed by the chairman, at the weekly meeting of the board holden on Friday the 1st day of December 1848.

6336. Do you know whether the board was ever supplied with such a map?—I think not, but our chairman will have a better recollection of what occurred at that period. He is here, Mr. Alderman Ingledew.

6337. (*To Mr. Ingledew.*) Do you recollect what was done?—There was no map or plan of the drainage supplied to the board of guardians.

6338. (*To Mr. Forster.*) Referring to the book of reports to the sanitary committee of the western district, under date the 12th of July 1849, do you find there two cases reported of drains obstructed, so as to cause a nuisance?—I find that in Peel Street there was a drain stopped.

6339. And a second instance?—And also in Chapel Lane.

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6340. (*Mr. Arnott.*) Peel Street is not within the ancient borough?—It is not.

6341. (*Chairman.*) Will you refer to the 26th of July?—I find that there was property in Clayton Street where the drainage was obstructed.

6342. Do you find three cases?—The drainage in Dixon's Buildings was complained of as defective, and Zion Chapel Yard.

6343. (*Mr. Arnott.*) In Dixon's Buildings the corporation have no power?—No; that is within the limits of the new borough.

6344. (*Chairman.*) Turning to the second of August in that book, do you find any allusion to drains there?—I find that the drains in Clayton Street are complained of, that the traps of the drains are too small.

6345. How many cases do you find reported on that day?—Dixon's Buildings' drains also are complained of; also Little Blagdon Street.

6346. (*Mr. Simon.*) Is Blagdon Street out of the borough?

(*Mr. Ingledew.*) No; it is within the borough.

6347. (*Chairman to Mr. Forster.*) On the 16th of August do you find a case of obstructed drains?—Yes.

6348. On the 23d of August a drain obstructed, or out of order?—Yes.

6349. The next week, 30th of August?—Yes; a cesspool in Churchill Street is complained of.

6350. I think there were at least three cases of obstructed drains on the 30th of August; just see if I am right?—In Sussex Street I find that it is entirely destitute of drains.

6351. I think you will find that there are two or three other cases?—In Back Blandford Street and Blenheim Street there appear to have been complaints of an accumulation of filth, but it does not say from what source.

6352. You do not find it stated to arise from obstructions in the drains?—No.

6353. Then proceed to the 6th of September?—In Denton Chare there is a complaint of a sink being obstructed.

6354. Any other. I think five cases are put down on the 6th of September?—Oyster-shell Lane.

6355. (*Mr. Simon to Mr. Arnott.*) Is Oyster-shell Lane within your old borough?—No.

(*Mr. Forster.*) Carr's Street also.

6356. (*Chairman.*) Any further?—High Buckingham Street; that, I believe, is all.

6357. Take the 20th of September?—Ship Entry, in the Cloth Market; there is a complaint of the obstruction of the drainage there, and in Greenhow's Terrace, also.

6358. Then, in fact, there were nineteen or twenty complaints of obstructed drains in the months of July, August, and September of the cholera time in 1849. Now take another example in the eastern district in 1853. Refer to the 11th of February. Do you find any reference there to obstructed drains on the 11th of March 1853?—In Taylor's Court the gutter is stated to be in a very dirty state, the drain being obstructed, and the privies and ash-pits being in a filthy state.

6359. Do you find two cases on the 11th of March?—Yes, in Denton's Court, Bigg Market, also a drain is complained of.

6360. Are there any cases on the 1st of April?—Yes; in the back of Nos. 11 and 12, Stowell Street, the drains are obstructed, and the stagnant water stands in each back yard.

6361. The 15th of April?—Yes; Stringer's Yard, Cut Bank, Ouseburn, upon which there is an accumulation of filth, night soil, also an obstructed drain.

6362. Are there two cases of obstructed drains that day?—Yes.

6363. Then on the 27th of May?—Yes; in Blandford Street, an obstructed drain.

6364. The 17th of June?—A drain behind the Prince of Orange public house, Side, obstructed.

6365. The 1st of July?—There is a complaint by the inhabitants of Spring Garden Terrace of an accumulation of dung, manure, &c. deposited in the lane immediately behind the houses, which caused the watercourse to be stopped, (I presume that is what you refer to) and in consequence thereof the back yards were full of stagnant water.

6366. (*Mr. Arnott.*) Will you ascertain whether notice has been given to the corporation in any of those cases?

(*Chairman.*) It is always mentioned where it is.

(*Mr. Arnott.*) These are private property.

6367. (*Chairman to Mr. Forster.*) The 15th of July?—Old Market Lane, Pilgrim Street, there is a complaint that a sewer is obstructed, and that there is stagnant water and other filth.

6368. There are two cases, I think?—Yes; there is also a complaint of an obstruction in a dwelling-house in a yard in Pilgrim Street.

6369. The 29th of July?—Yes; a complaint of an obstructed drain behind No. 3, Forth Terrace.

6370. Are there two cases?—Yes.

6371. Referring to this other book, do you on the 23d of May 1851, find any reference to the obstruction of the sewerage in Brandling Place?—Yes; the inspector reports that he has "visited Brandling Place with regard to the sewerage, which is obstructed."

(*Mr. Arnott.*) Brandling Place Sewerage the corporation had nothing to do with at that time.

6372. (*Chairman.*) No, they had not. (*To Mr. Forster.*) Turn to the 11th of July 1851.—This is the report of Inspector Jenkins: "I beg to inform the board that several "shopkeepers and other inhabitants at the head of the Side complain of the imperfect "state of the public sewer leading from the Back Row to the head of the Side, it being "kept and constructed that it cannot contain the pressure of the water. On Wednesday "last it burst up the shop floor occupied by Mr. ————, and did considerable damage to "his goods. I waited on Mr. Wallace, the town surveyor, who immediately sent his "workmen to repair the above sewer."

6373. On the 17th of October 1851, do you find any reference to Blagdon Street sewer?—Yes; "Mr. George Hudson complains of the drains and sewers in the above "street being in an obstructed state, in consequence of which the stagnant water and "other filth is overflowing into the dwelling-houses of persons living in that neighbour-"hood, so as to be a nuisance."

6374. The 9th of January 1852, in Thornton Street, one of Mr. Grainger's streets?—9th of January 1852: "Several of the inhabitants living in Thornton Street complain of "a foul and offensive drain behind their premises. It appears that the common shore "belonging to Mr. R. Grainger is obstructed, which causeth the above nuisance. I have "seen Mr. Brown, who is foreman to Mr. Grainger, who has promised to remove the "nuisance immediately."

6375. Then the 6th of August 1852?—The inspector reports "that several shopkeepers "and owners of property in Gallowgate complain of the imperfect state of the public "sewer; it being so constructed that it cannot contain the pressure of the water in wet "weather. It overflows into the drains of the houses, and into different dwelling-"houses."

6376. Will you be good enough to turn to the 18th February 1851?—Between the 27th of September 1849, and the 21st of February 1851 there does not appear to be any entry here.

6377. It is with reference to the rebuilding of Eddie's Entry?—The proceeding does not bear any date except that when it was produced before the board; there seems to be a report as to Eddie's Entry.

6378. Will you be good enough to read what that is?—"Visited sixteen of the Irish "lodging rooms in this entry, in which there are several fever cases. I found from eight "to ten women and children in each room, there being one or two small beds in each, "which could only accommodate two persons in each, leaving the other parties to lie on the "floor indiscriminately. The premises have only recently been rebuilt but are now in a "most filthy state, there being neither privy or ash-pit on the premises; the tenants lay "their night soil in the lane, (which is very narrow), which then runs into the sewer on "the public street. This entry is entirely let off to Irish families."

6379. On the 15th of August 1851, do you find any reference to a room in Queen Street?—Yes.

6380. Will you be good enough to read it?—"The York, Newcastle, and Berwick "Railway Company has an empty room in this street which is used as a privy by several "of the inhabitants of Castle Garth and Queen Street. Several persons living in the "adjoining premises complain of the above nuisance."

6381. On the 22d of October 1852, does Inspector Roberts report anything similar as to a cellar in a dwelling-house at the back of the Goat public house?—Yes; "I beg to "inform the board that I visited a dwelling-house, situate at the back of the Goat public "house, Cloth Market. Under the above dwelling, in a cellar, there are seven or eight "cart loads of ashes, night soil, offal, urine, &c., which have been deposited there by the "tenants."

6382. On the 8th of July 1853, does Inspector Roberts report anything similar again?—"Property situate in the Butcher Bank, where there is a depôt made of a cellar, and "made use of by all the tenants. There are about eighteen cart-loads of ashes and night "soil; the smell arising from the above is very offensive so as to be a nuisance," &c.

6383. I suppose, without taking you through the the book in detail, that you will remember that the arches of the York, Newcastle, and Berwick Railway are complained of as being in a filthy state almost every week or fortnight, notwithstanding that after almost every such report it is stated that the nuisance so reported had been removed?—I remember them very frequently being complained of.

6384. You generally, I believe, found the persons to whom you gave notice of the existence of nuisances, willing to remove them?—Generally I believe it was so.

6385. It was but seldom that you had occasion to bring the parties before the magistrates?—Only seldom.

6386. And I think you frequently found the same place, house, arch, and so on, re-complained of time after time?—There were some instances of re-complaints.

6387. Referring to the book of reports to the Sanitary Committee of the eastern district on the 16th of March 1849, will you read the last few lines of the report of the inspector?—"The inspector presented his 20th report, which was read, considered, and approved.

Mr. G. Forster.

28th Jan. 1854.

"The inspector having stated that several nuisances which were before removed are again "in existence, the committee urged him to use all necessary diligence as to his future "proceedings."

6388. Will you turn to the 12th of July and read what is there written?—"I have "observed that the great majority of nuisances are not new ones, but old ones revived "since I was in office before."

6389. I believe in going through the book I could find several other such reports to the effect that the nuisances were continually recurring in the same spots, under the same circumstances?—Yes.

6390. (*To Mr. Ingledew.*) We would wish your opinion, as to what you think that is attributable to?—Under the Nuisances Removal Act we had only power to cause the surface to be cleansed from time to time, as our officers discovered nuisances.

6391. (*Mr. Simon.*) You had only power to remove what had already become a nuisance?—Precisely so.

6392. When it had reached a certain intensity?—When our officers reported that there was such an accumulation of filth and so on as to be a nuisance, we gave directions that it should be removed. From time to time the same places had the same orders given with respect to them.

6393. (*Chairman.*) You had no power to prevent the making of a nuisance?—No.

6394. You had only power to remove it when made?—Precisely.

6395. What do you think that the continual recurrence of those nuisances was owing to?—For instance, was it from a perverse love of filth on the part of the inhabitants, or was it owing to the want of proper accommodation of privies, ash-pits, and so on, that they persisted continually in making use of the Newcastle and Berwick Railway arches as privies and ash-pits?—The inhabitants, I think, had insufficient accommodation, coupled with the want of cleanliness on the part of those inhabitants; but I take it from what I know of those arches, respecting which I have very frequently made complaints from my own observation to the inspector of nuisances, that it chiefly arose from want of accommodation.

6396. There might be some dirty people?—Yes.

6397. But you would not believe that the majority of any class of people would willingly perform the duties of nature in open railway arches, if they had proper privy accommodation?—I should not.

6398. And if they had an ash-pit close to their own houses they would not go a hundred yards to shoot their ashes under a railway arch?—Not generally.

6399. (*Mr. Simon to Mr. Forster.*) Looking over these books we find, first of all, that there are innumerable instances of complaints arising from the accumulated contents of ash-pits and of privies?—Yes.

6400. Does it seem to you that there has been any want of regulations to insure a systematic emptying and cleansing out of privies and ash-pits?—I think there has. There has been no plan or system adopted by which there could be a regular removal from time to time of these accumulations.

6401. Next we observe that there are a host of nuisances arising from the stoppage and overflowing of drains. Do you think that that arises from any failure in the system of sewerage and drainage of the town?—I think that it probably arises partly from the corporation not having had the necessary powers until recently to have constructed new drains, and to have altered that which was defective in the old. Recently the corporation have done a great deal in draining, and are going on in that direction.

6402. I take it, then, you would regret that in the Local Act which was obtained in 1850 between your representations in 1848 and the last Local Act in 1853, powers were not taken enabling the corporation to enforce proper house drainage?—I think it is a matter of regret that they were not earlier obtained.

6403. Next, as to overcrowding, we find from time to time, in the papers which were brought before you, complaints of dense overcrowding in tenemented houses?—Yes.

6404. Did it appear to the board of guardians that that might have been prevented by the enforcement of rules for the regulation of such places?—I believe it was the feeling of the board of guardians that the Common Lodging-houses Act would be a very wholesome Act to carry out in its provisions. That, however, we were not charged, as you are aware, with carrying out. I believe all those members of the board who were also members of the town council were anxious that that Act should be put into operation.

6405. Referring to the time anterior to the outbreak of cholera in 1853, does it appear to you that the benefit which might have been derived from carrying out the Common Lodging-houses Act had actually been derived from it?—Certainly not.

6406. We find that from the year 1846 the town council had authority to make byelaws, and to lay down rules for cleansing filthy and unwholesome dwellings. Does it appear to you, from the class of nuisances brought under your notice, that rules of that character have been properly made and put in force by the town council?—I am not aware to what extent they have carried out these provisions. The corporation officers, upon whom devolves this duty, would be better able to speak to these facts than myself.

6407. I would only ask you whether, from the class of nuisances brought under your observation, you would or would not infer or know that rules of this description had been made and put in force?—I should not, certainly, infer that they had been enforced. Whether made or not, I really do not know.

6408. Do you often receive complaints as to offensive trades and offensive occupations within the limits of the borough; cattle, slaughter-houses, pigs, and so on?—I have not been cognizant of many such complaints made to the council.

6409. But are you aware that in the fortnight during which you had additional inspectors of nuisances in September 1853, numerous instances were brought before the board of guardians of nuisances of this kind?—There were nuisances of that kind referred to.

6410. Did you find one inspector of nuisances, during the three years and a half intervening from the beginning of 1850 to the middle of 1853, sufficient for bringing under your notice the more flagrant cases of nuisance?—The board of guardians never had any complaint on the part of the inspecting officer that he had more duties devolving upon him than he could go through.

6411. (*Chairman to Mr. Ingledew.*) You are a member of the town council, are you not?—I am.

6412. And your vice chairman, Mr. Ridley, is a member of the town council also?—He is.

6413. Were any representations ever made either by yourself or Mr. Ridley, or any other of the board of guardians who may have happened to be members of the town council, to the town council as a body, either privately or publicly, that you know of?—As to what?

6414. Of the nuisances to which we are alluding. Were any reports made by you or them to the town council, so as to bring under the notice of the town council this everlasting recurrence of nuisances?—I think not. I think the only sanitary matter brought before the town council was the putting in force of the Lodging-houses Act. With reference to the other nuisances, our inspector had directions constantly to give notice to the town surveyor, and we expected that that would be sufficient; and they, generally speaking, were attended to.

6415. I mean with a view to inducing the town council to adopt some system for the prevention of nuisances?—Those cases were laid before the board of guardians, and before any member of the town council who happened to be a member of the board of guardians.

6416. Your staff, I suppose, was not so efficient for the purpose of removing nuisances as the staff which the town council could have brought into operation?—Certainly not.

6417. Do not you think that it would have been desirable that, after the passing of the Nuisances Removal Act and the Nuisances Removal Amendment Act, the town council, with their powerful staff, should have taken up the working of it, instead of leaving it to the board of guardians?—I think it desirable that they should have done so if they chose, but my belief is that the board of guardians, as a body meeting every week, is more competent to deal with the matter than the town council.

6418. Owing to what circumstances; their repeated meetings?—Their repeated meetings, and having the reports brought before them from week to week; then, upon these reports, they give the necessary directions.

6419. Supposing there had been a committee of the town council, which met twice a week, and so on, to work that Nuisances Removal Act effectually, with their powerful staff, do not you think that that might have been an improvement?—Yes.

6420. We are at a loss to understand, on reading the statute, why the execution of that Act should have been thrown upon what may be called the Poor Law authorities, instead of on the municipal authorities?—One of the reasons was that the expenses incurred in carrying out the provisions of that Act were thrown generally upon the town; they were paid out of the poor's rate. Had these provisions been carried out by the town council, they would have come upon the private resources of the council.

Vide Memorial, ante, p. 387.

6421. Upon the borough fund?—Upon the borough fund. I may say that the board of guardians were exceedingly desirous to carry out, to their fullest extent, the provisions of that Act of Parliament.

6422. That we have strong evidence of. Except a few gaps of six or eight months each, we have a continuous record in these books of the exertions of the board of guardians from week to week, signed either by yourself or by Mr. Ridley, I think, every time. I noticed very particularly that you yourself attended every week almost, and signed two or three books?—I may observe, with respect to that, that these reports were all deliberately read out in the presence of the whole board, as they were made.

6423. But the board never did, either officially or through its individual members make any representations to the town council, to induce them either to take up the working of the Nuisances Removal Act, or to adopt any comprehensive system for the preventing of nuisances, except in regard of the one point of a general drainage of the borough?—No.

Mr. G. Forster.

28th Jan. 1854.

6424. (*To Mr. Forster.*) We requested you to prepare for us a statement of the expenses to which the board of guardians had been put in respect of this epidemic; is that the statement which you have prepared (*handing a paper to the witness*)?—That is the statement.

6425. And that, to your knowledge, is correct, as far as you know?—As far as I know it is correct.

CHOLERA, 1853.

NEWCASTLE-UPON-TYNE UNION.

Estimate of the expense of removing Nuisances, of Furnishing, &c., House of Refuge, of Funerals, of providing Necessaries, Clothing, Food, and Brandy for the Sick, of Drugs, and Medicines, and of Assistant Medical Officers, Nurses, &c. &c.

Items.	Amount already paid.			Amount yet to pay.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
Expenses of removing nuisances -	64	14	9	15	17	6	80	12	3
House of Refuge - - -	25	4	11	-	-	-	25	4	11
Funerals (excepting what is charged in the relief lists) - - -	49	16	4	3	1	6	52	17	10
Funerals in relief lists estimated at -	350	0	0	-	-	-	350	0	0
Necessaries, clothing, food, and brandy -	47	13	11	127	3	5	174	17	4
Drugs and medicines - -	140	0	0	1,043	10	2	1,183	10	2
Assistant medical officers - -	1,005	14	0	913	19	0	1,919	13	0
Nurses charged in relief lists estimated at	60	0	0	-	-	-	60	0	0
	1,743	3	11	2,103	11	7	3,846	15	6

The annual expenses attending the removal of nuisances previous to the late epidemic was about 46*l.*

Number of Persons who became chargeable on account of Cholera according to Returns furnished by the Relieving Officers entered on the Minutes of the 18*th November* 1853.

Adult males - - -	213
Adult females - - -	209
Widows - - -	160
Orphans - - -	125
Other children - -	625
	1,332

Estimate of the weekly expense which has since been incurred for the maintenance of people who have become chargeable in consequence of cholera,—50*l.*

6426. The actual expenses out of pocket seem to have been about 3,800*l.*?—That, of course, is a proximate estimate. It is not strictly ascertained yet, but it is as near as it is possible to give it, in accounts which yet remain to be settled.

6427. The annual expenses attending the removal of nuisances, previously to the late epidemic, had been about 46*l*?—Yes.

6428. Does that include the wages of the inspector or inspectors of nuisances?—It does.

6429. The weekly expense which you have since incurred, for the maintenance of individuals rendered chargeable in consequence of the cholera, is about 50*l*?—Yes.

6430. Have you any notion how many years' purchase that may be worth?—I have not entered into any calculation of that sort.

6431. (*To Mr. Ingledew.*) Here is an estimate of a weekly expense of 50*l.*, for the maintenance of widows, orphans, and so on; or say an expense of 2,600*l* a year, for a given time, as long as the widows live, or till the orphans are adult, and so on, and with an expense out of pocket of nearly 4,000*l*. Should we be making an extravagant estimate, if we said that this epidemic had cost your board alone 25,000*l.*?—I should think you would.

6432. At how many years' purchase do you set down that 50*l.* a week?

6433. (*Mr. Simon.*) Ten years' purchase?—I was thinking of ten years' purchase.

6434. (*Chairman.*) But supposing the widows and orphans, on the average, were chargeable upon you only for eight years, the expense would be about 21,000*l.*, and there are 4,000*l* for the expenses out of pocket. Do you think now that 25,000*l.* would be beyond the mark?—That may be so, guessing at it.

6435. (*Mr. Simon to Mr. Forster.*) In addition to that, I believe several thousand pounds were spent by the vicar for the relief of the sick survivors, &c.?—There was.

6436. To the extent of 6,000*l.* or 7,000*l.*?—Yes.

6437. And the town council, I believe, gave 500*l.*?—They did.

6438. (*Chairman to Mr. Ingledew.*) And there were some thousand pounds for extra expense incurred by the benefit societies. It was stated to me by a person who ought to know, that the expense had been probably somewhere about 7,000*l.* or 8,000*l.*; but suppose I take 3,000*l.* or 4,000*l.* as the extra expense incurred by the benefit societies of Newcastle and Gateshead; should you think that an extravagant estimate?—I am not aware..

6439. We had in evidence from the foreman of Mr. Stephenson's works that the three months of September, October, and November cost the benefit society which exists among the men there something like 200*l.* in addition to their ordinary expenditure. I know that there are close upon 200 benefit societies, less or larger, in Newcastle and Gateshead, and I have in my own mind set down 3,000*l.* or 4000*l.* as a moderate computation of the expense incurred by them altogether. You could not yourself give any opinion upon that?—I could not.

(*Mr. Forster.*) I had not the slightest notion of it.

(*Mr. Ingledew.*) I had no idea that it would amount to so much.

6440. (*Chairman.*) The person to whom I allude, Mr. Kerss, gave me the details of some sixteen or seventeen societies, among which the extra expense had been close upon nine hundred pounds; but he admitted to me, upon my questioning him, that those were among the largest societies, and that you could not expect to keep up that average; you have not yourself ever considered that subject?—I have not.

6441. (*To Mr. Forster.*) Have your poor rates been very high; could you give us the average of what your poor rates have been, taking the past seven years?—I can furnish you with that.

6442. Without much trouble, I suppose?—Without much trouble. I may state generally that they have not been high.

(*Mr. Ingledew.*) They have been very low within the last three or four years.

(*Chairman.*) Since the Irish fever they have been going down again?—Yes.

6443. And now up again?—They are not up yet; they probably will be very shortly I believe the next call will be considerably more than we have been in the habit of calling.

6444. Could you tell us what the last call was, and what you suppose the next one will be?—I cannot answer that; I think it was about 20,000*l.* or 22,000*l.* or 23,000*l.*

6445. How much in the pound would that be in your borough?—We do not make the call upon a pound rate; because different townships have different rates. We have an aggregate amount. We call upon the various townships and parishes comprised in our union according to the balances appearing in hand, and according to the requirements for the relief of each particular township.

6446. Have you paid attention to the state of the town at different times?—As a very old inhabitant and as a resident in it I could not avoid paying attention to it.

6447. Will you give us your opinion on any points as to the state of any districts that you remember, as to whether they have improved or gone back?—I cannot say that they have gone back; but I must say that they have improved upon the whole.

6448. Take Sandgate; is that one of the places to which you allude?—Sandgate, no doubt, has been improved latterly.

6449. (*Mr. Simon.*) Have you had occasion to visit it?—I occasionally go through it, and have occasionally in my capacity as a guardian made visits to it.

6450. Do you differ from the opinion which has been expressed and expressed strongly, that it would be better to remove it altogether?—If it could not be cleansed, I think it would be better removed, certainly.

6451. Cleansed and also ventilated?—The houses are too much crowded together, and in small lanes and alleys.

6452. (*Chairman.*) How do you think that Pandon is, in regard of Sandgate, worse or better?—I think Pandon is worse.

6453. And as to Castle Garth, do you think it as bad as Sandgate?—I do not think it is so bad as Pandon and Sandgate.

6454. (*Mr. Bateman.*) By St. Nicholas church, how is it?—I do not know it of my own knowledge. There are some entries opposite St. Nicholas church, which, I am told, are in a very bad condition. There is an old sewer running down at the foot of these entries, which is, I am told, in a very imperfect state, and that a great deal of unpleasantness arises to the inhabitants there.

6455. (*Chairman.*) If you would like to make any observations as to water or gas, or any other point, we should be glad to have your opinion?—No. I may say that this is the first opportunity which I have had of attending this Commission. I have been absent from home for the last two or three weeks, and therefore I hope the members of the Commission will not think that I have been negligent as a public officer in attending here.

6456. You have been well represented here nevertheless, and we have had the very able assistance of Mr. Forster. (*To Mr. Forster.*) We will leave it to you to make any observations or not, as you may please on water, or gas, or any other point you like, as a private citizen?

Mr. G. Forster.

28th Jan. 1854.

(*Mr. Simon.*) Or as an officer?—These are subjects which I have not given very close consideration to, and I should prefer leaving it to those who have given more consideration to such matters.

Mr. J. Stephens.

MR. JOHN STEPHENS, sworn.

6457. (*Chairman.*) You are superintendent of police in this town?—I am. I have been superintendent here since 1836, and previously to that I was seven years in the metropolitan police.

6458. In which district of the metropolis were you?—In three; in the last I was in Westminster.

6459. In Westminster, than, you probably became familiar with some of the very worst localities in all London?—Yes, Tothill Fields.

6460. Can you form a judgment in your own mind as to the comparative state of the very worst parts of Westminster, and such parts of Newcastle as Sandgate and Pandon, Causey Bank and Silver Street, the Close and Castle Garth, and so on?—It is a different kind of population altogether; the proximity of the household troops and the guards cause a great deal of vice and misery there.

6461. Speaking in detail then, and firstly of privy accommodation, do you believe, that taking the worst district which you can think of in all Westminster, you could find any place there so extremely destitute of privy accommodation as Sandgate, and some other parts of Newcastle?—The difference in the two towns is very distinct. I have only experience of those two towns, and I find that there has been a great deal done in the sewering here since 1845. There was a sewer rate laid on at that time, and a great number of sewers have been made; and there is every disposition on the part of the authorities to make sewers: but there is an impatience, on the part of the people, of taxation; and as the representatives are controlled by the people, they have to struggle through difficulties; and therefore, whenever a motion is made for the expenditure of money, the representatives have considerable difficulty.

6462. You have not quite understood my question, nor the object of it. We have examined three or four gentlemen of great experience as superintending inspectors of the Board of Health, and they have, almost every one of them, I believe, said, that in the totality, so to say, of sanitary evils, in the want of house drains into sewers, if there be sewers, in the want of privies and ashpits, the want of sufficient paving, the want of scavenage, the want of adequate water supply, the bad form of house construction, the extent to which overcrowding prevails, and so on, there are no districts within their knowledge throughout the whole kingdom, of anything like the same extent and area, which are so totally destitute and ill-conditioned as Sandgate and Pandon and Castle Garth, and two or three others that we can speak of, and that they would therefore recommend that these places be pulled down by way of improvement; and accordingly, we wanted to get an opinion upon this very same point from you, who have, or ought to have, a most intimate local acquaintance with what we take to be among the very worst localities in the kingdom, viz., with those places about Westminster. In regard, therefore, of privy accommodation, which we take as the first point of comparison, do you know any district in Westminster, of which you can say that nine-tenths of a population of between four thousand and five thousand persons are, or were in August 1853, so extremely destitute of privy accommodation, as you yourself must know Sandgate and Pandon and some other of the districts of Newcastle to be?—The property in Westminster, and the property in the parts you have mentioned, are not of the same antiquity.

6463. (*Mr. Simon.*) But are they without privies there?—I dare say there are a great number without privies in Westminster.

6464. Do you believe that nine-tenths of the population in any district which you can name there are without privies?—I think the history of the town must be considered in giving an answer to the question. I must go to its first condition. In all ancient towns, particularly in walled towns, the people huddled under the walls for protection.

6465. (*Mr. Bateman.*) That may be a reason why it should be so bad, but take it first upon the naked facts of its badness. Is the worst part of Westminster as bad as the worst part of Newcastle?—I cannot speak of the sewerage of Westminster.

6466. (*Chairman.*) We are asking you as to the privy accommodation?—I will tell you the custom in this town.

6467. We want to know the simple fact, whether in your acquaintance with the very worst districts of Westminster, you ever knew a district of anything like the size of Sandgate or of Pandon, nine-tenths of the population of which were, so to say, without privy accommodation?—There is a difference in the towns. I cannot answer the question. I must decline answering the question.

6468. (*Mr. Bateman.*) Is there any district of Westminster so destitute of ventilation, or so blocked up in narrow alleys and blind courts as Sandgate?—As I said before, there is not; because———

6469. First, simply, do you know any district of equal extent in Westminster, where there is so little light and ventilation, and means of obtaining air?- Westminster is very bad indeed.

The evidence of this witness was here discontinued, and his previous evidence, both oral and documentary, expunged; except in so far as may suffice to exhibit his contumacious behaviour, and his determination not to afford to the Commissioners that information, which they have good reason to suppose he must have possessed. The few following questions and answers, however, have been allowed to stand, on account of the wholly new piece of evidence or information to which they led.

6470. (*Mr. Simon.*) Have you any knowledge of any regulations that may have been issued relating to lodging-houses, either under the local Act of 1846, or under the Common Lodging-houses Act of 1851?—Yes.

6471. With the dates at which they were issued?—With regard to the Common Lodging-houses Act, it was brought before the authorities, and some difference of opinion existed as to the construction of the Act. A deputation of the watch committee waited upon the magistrates, and it was discussed; however, no regulations were in force. I took the clause of the Act of Parliament and directed a superintendence of the lodging-houses; and this is a register of them, which I have kept ever since.

6472. Will you apply yourself to the regulations issued?—In the Act of Parliament there was a clause giving me power, in fact insisting that they should be registered.

6473. It was the regulations which we were anxious to hear about first?—I stated that there were no byelaws formed, in consequence of a difference of opinion.

6474. There were no byelaws issued till when?—Till the latter part of 1853; but notwithstanding that, though that was not the case, yet there was a superintendence over them, by a clause in the Act of Parliament, and we obliged them to register themselves; this is the record of the registration. One person was fined two pounds for overcrowding, and not keeping his place clean. There were other poor people brought up and admonished.

6475. Will you advert to the circumstances of that fine?—It does not appear in this record.

6476. Will you have the goodness to give us the reference to that fine?—While the book is being sent for, I may mention that it had a very beneficial effect, our paying attention to the lodging-houses. There was a marked improvement in them, and many of them felt it too irksome, and left their lodgings and went to some other part of England. There are 140 of them here. I ought to state, that during the epidemic we distributed seventeen jars of lime, which we gave to the poor people. Here is a record of the number of persons now living in the Keelmen's hospital: there are nine averaging seventy-seven years each; one eighty-two, another in Sandgate eighty-five, another eighty-nine, and in the North Shore, one ninety-two; in Byker, one eighty-one; in St. Anthony's, one eighty-two; St. Peter's, one eighty-three.

6477. You have stated that a person was fined two pounds for overcrowding?—For a breach of the regulations of the Act of Parliament. I think it was for overcrowding and dirt together; the book will show that he was fined.

6478. (*To Mr. Town Clerk.*) Was a person fined two pounds for overcrowding, without regulations having been issued on that subject?—(*Mr. Town Clerk.*) I have no means of knowledge on the subject. Parties are not to be received in common lodging-houses until registered under this Act. It was under that clause perhaps, that he was fined; because he had taken lodgers in, and had not registered.

6479. (*To Mr. Stephens.*) Then he was fined for not registering, not for overcrowding?—For not registering and being dirty. Here is the officer who proved the conviction. This is a notice which was issued by the Trinity House to ships (*producing the same*).

6480. (*Chairman.*) We want to know how a man was fined either for being dirty or for overcrowding, seeing that, as you say, no regulations or byelaws as regards either the cleanliness or the overcrowding of houses had ever been issued?—It is under this clause; he was fined for taking in lodgers without having registered.

6481. The officer, Mr. Little, to whom you refer as having given evidence for the conviction, says it was for overcrowding. We want the book to ascertain what the facts are?—(*Mr. Town Clerk.*) Here is the record of the conviction. It is under the eighth section.

6482. For not registering? — (*Mr. Town Clerk.*) No, for taking lodgers before the house had been inspected and approved. The clause runs thus: "After one "month after the giving of such notice to register as by this Act provided, the keeper of "any common lodging-house, or any other person shall not receive any lodger in such "house, until the same has been inspected and approved for that purpose by some officer "appointed in that behalf." It had not been approved.

6483. (*Mr. Simon.*) It was not then a conviction for breaking any regulations that had been issued?—(*Mr. Town Clerk.*) No; but for non-compliance with that clause.

6484. (*Chairman.*) If evidence was given by Mr. Inspector Little, as to the overcrowding of the house, and so on, still it was not upon that evidence that he can have been convicted?—(*Mr. Town Clerk.*) Those were incidental circumstances, which probably would influence the mind of the convicting magistrate.

6485. (*Chairman.*) There is no authority in the Act to fine a man for overcrowding his house, until after regulations on that head have been issued?—(*Mr. Town Clerk.*) There is not.

Mr. R. Wallace.

28th Jan. 1854.

Mr. Robert Wallace, sworn.

6486. (*Mr. Bateman.*) You are the town surveyor of this town?—I am.

6487. You have just handed in several documents, one of which is a list of paved and unpaved streets and alleys in the borough of Newcastle; the total amount appearing to be nearly forty-four miles?—Yes.

6488. Does that include the whole of the streets which are thoroughfares within the borough?—It includes the whole of those that we conceive to be streets. The borough is very extensive and includes a good deal of what we regard as the country; but those are all that we conceive to be streets.

6489. (*Mr. Simon.*) Within the old borough of Newcastle there appear to be about 28¼ miles of public way, of which about 15½ miles are paved streets, about 8¼ macadamized streets, and 1½ paved or flagged alleys; while there are about two miles of what you call unfinished streets, and nearly a mile of unfinished alleys; by which, of course, you mean streets and alleys to which nothing whatever has been done?—Yes, that is within the ancient borough.

6490. Then in Westgate and Elswick townships you have about 12¾ miles of what you conceive to be public way, of which nearly 4¼ are paved streets, more than 2½ are macadamized streets, and nearly ¾ are paved or flagged alleys; while there are nearly 3½ miles of unfinished streets, and more than 1¾ of unfinished alleys?—Yes.

6491. Again, in Byker and Jesmond townships you have nearly 2¾ miles of what you call public way, of which nearly ½ a mile is paved street, nearly ¾ is macadamized street, and nearly ¼ paved or flagged alleys; while more than one mile is unfinished street, and nearly ¼ mile unfinished alley?—Yes.

6492. (*Chairman.*) Can you tell us what is the length of the public ways or thoroughfares in the borough, which you do not conceive to be streets?—That I cannot tell.

6493. (*Mr. Simon.*) Were you responsible for the pavement of those townships?—No; we have not done anything there at all, except in one case; and there the parties paid for it. Indeed until last August we had no control over the roads and streets in the townships.

6494. So that the pavement in the townships is not your work?—No.

6495. (*Mr. Bateman.*) Then the whole amount for which you have been responsible would be the 28¼ miles finished and unfinished within the ancient borough?—Yes.

6496. (*Chairman.*) Do you know whether anything has been done under the 20th section of the Act of 1850, authorizing the council to compel the paving of "any court, "lane, passage, or place within the borough for the time being open for foot passengers or "carriages, even though having a gate, bar or chain thereon, or over which any person "may have or exercise ownership?"—We have paved and flagged a street of that kind in the Shield Field where there was a gate or bar across it.

6497. You have occasionally done so?—We did one there.

6498. Do you remember about what time it was?—I suppose about three years ago.

6499. In 1851, perhaps, just after the passing of that Act?—I suppose about three years ago.

6500. (*Mr. Bateman.*) In speaking of paved streets you include everything which is or has been paved, no matter what its condition now?—It is no matter what description of stone, whether sets or boulder stone or chip stone. We class them all under the head of pavement.

6501. And in macadamized streets and roads do you include any which are cindered, or those with broken stone upon them only?—Broken stone only.

6502. (*Chairman.*) Is the paving in Sandgate mainly with pebbles and boulders?—Yes.

6503. And are the paved or flagged alleys many of them paved like those in Sandgate?—Yes.

6504. Unfinished alleys are those which have not had anything done to them except what refuse the inhabitants choose to throw upon them?—Yes.

6505. I see that about the 9th May 1851, Inspector Jenkins, in reporting several of the Sandgate lanes as filthy, added that the corporation sweepers could not get the filth removed in consequence of the lanes being so much out of repair with regard to paving. Would that, think you, apply to many other instances beside those in Sandgate?—I might mention, that since that time the whole of the alleys on the north side of Sandgate have been wholly renewed by flagging. On the south side of Sandgate most of them have undergone a very great repair.

6506. You have gradually been substituting flags in the courts for these boulder stones?—Yes, and improving those that were paved with boulders; re-paving many of them.

6507. (*Mr. Bateman.*) In the ancient borough it appears that there are only two miles of unfinished streets and nearly one mile of unfinished alleys, making altogether nearly three miles out of 28¼?—Yes.

6508. In Westgate and Elswick townships there are nearly 5½ miles unfinished out of 12¾?—Yes.

6509. And in Byker and Jesmond townships there is rather better than 1¼ out of 2¾?—It must be clearly understood that we do not take the whole of those townships in; we only take some of the principal streets connected with houses adjoining the ancient borough; we do not go to any extent into the townships.

6510. Have you any provision for paving new streets as they are formed?—We have the power of compelling them to be paved at the expense of the proprietors.

6511. (*Chairman.*) Since 1850?—Since 1850 I believe it is.

6512. (*Mr. Bateman.*) Within the ancient borough has this been done pretty generally?—The old streets, those that have been paved before, we are bound to keep up.

6513. But the new streets which from time to time are built within the ancient borough?—There we can compel the proprietors to pave and flag them at their own expense; and when finished, the corporation take them up and keep them up thereafter.

6514. (*Chairman.*) You mentioned that, about 1851, you caused a private street in Shield Field to be paved under the power of the Local Act of 1850. Do you remember any other instances of the kind?—We have done three or four more. We did Shield Street, and we did Camden Street and one or two other streets.

6515. Was it at the same time?—About the same time.

6516. (*Mr. Simon.*) You have no way of telling us, I suppose, how far these streets which are paved are well paved, or how soon they would require to be renewed?—We have no knowledge of that; it depends a good deal upon the material they are paved with and the traffic upon the street.

6517. I see some streets put down here as paved streets, along which we walked a day or two ago, and I confess we should hardly have suspected that they were paved; I mean about St. Peter's?—That has not been paved by me. I never did a yard of pavement there.

6518. They enter into your list of paved streets, however?—Just so.

6519. They are put down here as paved; St. Peter's and the five small streets running from St. Peter's northwards are put down as paved?—Yes.

6520. (*Mr. Town Clerk.*) You did not pave them?—No; but the Commissioners wished to have the whole number of the streets paved; and I merely complied with their request, or I should not have put them in at all. I had nothing to do with them.

6521. (*Chairman.*) We walked up and down most of those five streets, and were hardly aware that they were paved?—I think you will find them paved. I think you will find the stone there.

6522. (*Mr. Bateman.*) How much of the whole 25¼ miles would be in that condition?—Not much of that kind, I hope.

6523. (*Chairman.*) You admit that some parts of what are here mentioned as paved are not by any means well paved?—I do not mean to set them all down as well paved streets.

6524. (*Mr. Town Clerk.*) But you say that all which you paved are well paved?—They have been; but some of them get bad in course of time.

6525. (*Mr. Bateman.*) We have also before us a list of the sewers in the town, which amounts to fifteen miles in length as nearly as may be?—Yes.

6526. Consisting of all shapes and sizes from 12 feet by 6 down to about 2 feet by 18 inches, which seems to be about the smallest size you have?—Yes; there are many more than those, small things in lanes and alleys, but we do not not conceive them to be sewers, and they are not included.

6527. (*Chairman.*) Have you no larger map to exhibit your sewers upon?—We have a very large one which we are busy with now. We have had to explore the whole course of the sewers. When I came into office, I scarcely knew where a sewer was; and in the course of time we had to ferret and explore them; and we are now preparing a larger plan, that we are going to lay them down on.

6528. When did you come into office?—In June 1835.

6529. (*Mr. Bateman.*) Nearly all the sewers are flat-bottomed sewers?—Yes; they were made so until within the last four or five years, since when we have adopted egg-shaped and circular sewers.

6530. What led you to adopt that shape; did you find the other sewers choked up or not acting properly?—I found many of them not acting so well as the circle was likely to do. I thought that when the water was spread over a large surface, it was not so likely to carry off so much of the sediment as in a narrow confined surface.

6531. Did you find many of your sewers stopped up or in bad condition?—Yes; I found a sediment in them occasionally; many of the old sewers.

6532. Were you often called upon to cleanse them?—Not very often; we had to cleanse some of them occasionally. Many of them have a very rapid fall and clear out all before them; others are like all sewers and have to be attended to and cleaned out occasionally.

6533. Have you had any sewers blown up by the quantity of water which passes through them at any time?—Yes.

6534. Where?—In general, between the foot of Dean Street and the Sand Hill. We have had that, I think, twice blown up.

6535. Was it by the amount of rain due to an ordinary fall, or was it by accident?—Partly both. The first time I recollect was when the North Shields' railway was opened out; it was a most tremendously wet day; there was, probably, as heavy a fall of rain as I ever recollect in this neighbourhood. I happened to be down at that point, and when I

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came back, I hardly knew the old place again; it was in such a state after having been blown up. I think, some time after again, some of the timber from Mr. Grainger's new buildings got down into and jammed across the sewer and blew it up.

6536. That was an accidental obstruction?—Yes; we got, I think, a labourer's hod out of it, and two or three short pieces of timber; and after that, we put in a very large sewer there. It had been a very small one; it had been two feet eight by two feet two, if I recollect rightly, and we put in a large one, and nothing has occurred there since, and never will, I think.

6537. I have been going through some of these sewers with you, and find them of almost all sizes and shapes, large ones running into small ones, and small ones running into large ones. For instance, taking that at the entrance of the Pandon Dean, where it begins with a large sewer twelve feet by six, it runs down to Stockbridge, where it is seven feet by four, and then at Pandon Dean becomes five feet by five; in the Pandon Street it is five feet by four, and then going down to the river is five feet by five?—I suppose it is never half full, any part of it.

6538. Although it appears that it is very various in size, is the smallest large enough to carry all the water?—Decidedly. The other day I went to look at it after the melting of the snow, and, in short, the invert of it was scarcely covered.

6539. In Pilgrim Street again, below the arcade the sewer is four feet by two feet two, and above the arcade four feet by two feet eight?—Yes, that is the case no doubt; but here the sewer comes along Moseley Street. When we put in this sewer, we made it larger than the one below. There are only about four or five yards there to connect it with the Moseley Street one; and there is scarcely any water running down it.

6540. So that the water coming down Pilgrim Street above the arcade may then have the option of escaping, partly down the lower part of Pilgrim Street, and partly down Moseley Street?—Yes.

6541. In following your Pilgrim Street sewer up into Northumberland Street, I find the sewer about four feet by two feet eight, up to the top of Northumberland Street at its commencement?—Yes.

6542. Is not Northumberland Street and also Pilgrim Street rather on the ridge of a hill, the ground falling away on each side?—Yes, it partly falls on each side into a sort of lower ground.

6543. (*Mr. Town Clerk.*) And the houses drain to the back, I suppose?—A portion of them do.

6544. (*Mr. Bateman.*) That sewer not having more to do, as appears at present, except to drain just the few houses immediately on each side of Northumberland Street, appears of an unusual size, does it not?—Not to me. I like to have a sewer for a man to go up readily, not merely to contain the water.

6545. Both those are egg-shaped sewers?—Yes, it was only put up four or five years ago.

6546. Do you intend to employ that sewer to carry off more water?—Yes, considerable water from the common will come to it; a great deal of water comes down by what they call the Castle Leazes; and a great deal more water will run down it than now does.

6547. When you are called upon to make a new sewer, how do you fix the size which it ought to be?—I cannot say that I have any particular scale, but I exercise my judgment, knowing the neighbourhood well; knowing the number of houses which there are, and the quantity of water which is likely to come down.

6548. In Gallowgate I think there is a sewer only about three feet below the surface of the ground; the height of the sewer itself being two feet six?—It is covered with the flags.

6549. The roof of the sewer forms the flagging of the footway?—A portion of it does.

6550. Do not the chinks in the flags allow the effluvium to escape from the sewer?—Very little sewage goes down it; that is a sewer not likely to answer the purpose very long.

6551. (*Mr. Town Clerk.*) As regards this sewer, of which the roof is the flag footway, are any water-closets drained into it, or is night soil of any sort introduced into it?—None at all; it is nothing but the water that comes down the Gallowgate and Leazes Lane.

6552. It is only a surface drain?—Only that.

6553. (*Chairman.*) Then the houses on either side do not drain into it at all?—Yes, a portion of the Leazes Terrace water comes into it.

6554. I mean their water-closets and sinks, and so on?—A portion of Leazes Terrace will drain into it; a portion of St. James's Street, also, will drain into it.

6555. Have they water-closets there?—Yes, in Leazes Terrace.

6556. (*Mr. Simon.*) And the house drains, such as they are, of Gallowgate, open into it, I suppose?—Yes, two or three go into it, but there is not much water goes down it; a great deal of clean water from the Leazes, too, comes into it.

6557. (*Mr. Town Clerk.*) Is that an ancient or a modern drain?—An old one.

6558. (*Mr. Bateman.*) I see that a good many sewers have been done within recent periods, 1846, 1847, 1849, 1851, and so on?—Yes.

6559. Since about 1847 there has been a good deal done apparently?—Yes; we got the borough sewer-rate then, and that is the reason why so many have been done.

(*Mr. Town Clerk.*) Formerly they were done out of the funds of the corporation. Since that time we have had a sewer-rate aided by the funds of the corporation.

6560. (*Mr. Bateman.*) Since this period have you adopted the egg-shape drain?—I myself prefer the circle. I do not like the egg-shape so well as the circle.

6561. Circular bottoms do you mean?—A circular drain altogether, with a stone bottom to it.

6562. I see there is a sewer in Ouse Street made in 1853, two feet by eighteen inches, which is a square sewer?—That is a small one, merely going across the street, though of course there is a good deal of water rushing down the hill; no houses drain into it, I believe.

6563. How are these square sewers constructed?—Generally they have flat bottoms; very often it is some of the Caithness flag stone, the same as we have for the footpaths here, an inferior sort of stone.

6564. With side walls upon a flat bottom?—Yes; we generally have the foundation laid level with the bottom of our sides. We principally depend upon the foundation; we generally have brick or stone with them.

6565. Do you find them at all liable to tear up?—No, not when they are below the side walls.

6566. (*Chairman to Mr. Bryson.*) Had the sewer in Grainger Street, which you examined for us some time since and found torn up, a flat bottom?—Yes.

6567. Flag or brick at the bottom?—Flag.

6568. The flag itself then was torn up?—Yes, but the bottom had never been under the wall.

(*Mr. Wallace.*) It was one of Mr. Grainger's sewers. I think it was a very old one. I do not think Mr. Grainger built it. I believe he found that old one there.

6569. Do you remember the circumstance alluded to by Mr. Wilson recently, of the finding of one sewer in making another in Pilgrim Street?—I only heard him speak about the small one in High Friar Lane.

6570. (*Mr. Simon.*) We had the statement from him that, in making a new sewer there, you found an old one of whose existence you did not know?—Where was that?

6571. (*Mr. Town Clerk.*) Near the head of Pilgrim Street?—We knew of the sewer there which goes down New Bridge Street.

6572. It was not a surprise upon you to find it?—Not at all. I have known it for these forty years.

6573. (*Mr. Bateman.*) That is a sewer which you have recently made, I suppose; Westgate Hill?—Yes.

6474. Why have you adopted these square sewers there?—Because it is a very rapid fall at Westgate Hill; probably one in fourteen.

6575. Do you think this a safer form?—It merely holds more water. It is desirable to have anything that will hold the most water. It is the readiest and simplest to make, that was all.

6576. The more rapid the fall the less the size need be?—Certainly; but I am not an advocate for small sewers; I do not like the idea of them.

6577. Do you think this is a safer or cheaper shape than the one with the circular stone bottom?—I do not think it makes much difference, but this is a better one there in my opinion for the place. I would as soon put a flat one there as any other; it makes no matter what it is there.

6578. You say that the fall is so considerable that anything would be washed away?—No doubt of it; there is such a very rapid rush there.

6579. You think it would not be so liable to tear up with a rapid fall across a flat bottom?—I think so.

6580. I think you have a paper also as to the number of houses which are drained or not drained?—Yes, I have it here.

6581. From this it would seem that, out of the 6,045 houses in the ancient borough, 3,551 are, and 2,494 are not drained?—That is so.

6582. And that, out of the 3,408 houses in the townships, 1,910 are, and 1,498 are not, drained?—Yes.

6583. So that, out of the 9,453 houses in the whole borough, 5,461 are and 3,992 are not drained?—Yes.

6584. (*Mr. Simon.*) I suppose, in counting the houses which are drained, you count every house into which any drain whatever passes, whether it opens to a water-closet, or to a privy, or to a sink, or into nothing at all?—Decidedly so, provided a branch drain leaves the sewer and goes into any part of the premises at all; that is a branch drain, and the house is a drained house, in my view of it.

6585. (*Chairman.*) If it merely carried off rain water from the roof, you would consider it a drain, and reckon the house to be a drained house?—Decidedly.

6586. (*Mr. Bateman.*) As far as I understand you, wherever a man has a covered private communication with a sewer, whether it be a deep drain or a superficial drain, whether it goes into his house, into a water-closet, to a sink stone, or only into his yard to carry off the rain water, you consider it a house drain?—Precisely so.

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6587. (*Chairman.*) Did you hear the evidence given to-day by one of the witnesses with reference to the level of the sewer in Pilgrim Street, which was said to be but a few feet below the surface, and, at all events, a good deal higher than the cellars of the houses there; so that the cellars could not drain into the sewer, but, on the contrary, were liable to have the leakage from the sewer drain into them?—That would be in Pilgrim Street, below the arcade.

6588. Yes, about the railway arch, I think. What is the depth of the sewer there?—That is about seven or eight feet down, I believe. I think it would be, on the average, seven and a half to nine feet deep, but three, four, five, or six feet deep in no part of it.

6589. Again, with reference to a sewer, about which we have heard a good deal, where the water has become stagnant, the water having been cut off from it some time ago; it is the one Mr. Winship alluded to?—That was cut off by the Collingwood Street sewer.

6590. In consequence of the run of water having thus been cut off, another sewer has been prevented from being flushed?—It has.

6591. (*Mr. Ramsay.*) Do you know the sewer in Broad Chare?—Yes.

6592. Where the effluvium came up?—It did, but we have stopped it for you. You are all right now.

6593. (*Mr. Bateman.*) Would it not have been desirable, for it seems very frequently to have been complained of, to have got rid of that stagnation in the sewer by putting a flush of water through it?—Probably. Two or three weeks ago I met the owner of the property there, along with our inspector of nuisances, and we had a good deal of talk about it. I recommended that a pipe drain should be put down there. The reason why that is stopped is principally from having the common privies over the top of this unflushed drain.

6594. And there is no water to carry the filth off?—Not only that, but the people put their ashes down it also. Many of the Irish people reside in that particular neighbourhood. The only way to cure it would be to put a pipe drain down there, and to let them have no communication with it except in the legitimate way, that is, by water-closets.

6595. I see your sewers are so made that they will take almost any amount of water?—Yes.

6596. Did you ever calculate the quantity of storm water which you may have to carry away?—That is one reason why I make them large, the storm water rushes so rapidly down the declivity upon which we stand.

6597. How do you calculate it, or what do you allow?—I make no particular allowance. I make no scientific calculation of it, but from actual observation and experience of the neighbourhood.

6598. You determine it by a sort of intuitive, off-hand calculation?—Decidedly.

6599. (*Mr. Simon.*) What traps do you employ for your sewers here?—I am sorry to say it has not been the custom in this town to trap much. There is a trap, one of my own designing, which has answered the purpose almost as well as anything. This is a rough sketch (*producing the same*). Here is our gully grate. This is a piece of metal or a stone door hung. As soon as any water comes, it opens and lets it through. We have this made of metal and of some of the Caithness smooth stone, and it answers uncommonly well. It is so simple; it flushes itself.

6600. Do not you find that every now and then some solid stuff gets in and locks it?—There are solitary instances of that; but we have men going round every day and looking at those things. This is another kind (*producing another drawing*).

6601. (*Chairman.*) You have put in a statement of the number of gullies, trapped and untrapped, in the borough at the present moment?—Yes.

6602. How many are there altogether?—980.

6603. Of those how many are trapped?—132.

6604. And how many are untrapped?—848.

6605. You have not prepared a statement of the numbers trapped and untrapped just previous to the late outbreak of cholera?—No, I have not.

6606. Have you exercised any control over the formation of house drains?—Yes, to a certain extent we have. We are promising a good deal of amendment there and to be a good deal better than we have been. Here is a list of the applicants that have had leave from the corporation to put in branch drains since the year 1847.

6607. I see from this that in the year 1847 you had only three applications; in 1848 you had three more; in 1849 you had ten; in 1850 you had seven; in 1851 you had six; in 1852 you had fourteen; and in 1853, previous to the late outbreak of cholera, you had nine; or on the whole fifty-two applications in the six years between August 1847 and August 1853: and that in the three months from the middle of October 1853 to the middle of January 1854 you have had sixty-nine new applications?—Just so.

6608. (*Mr. Simon.*) Is the entry into the sewer made under your superintendence?—Yes, we generally contrive to see it as much as we possibly can. I do not say we see every one. Men that we have confidence in we can trust, and others that we have any doubt of we look after.

6609. Do you regulate the size or construction of the drains for private premises?—It scarcely requires it. I generally recommend them to adopt pipes where they take my advice. I believe we have the power of compelling them, but I do not think we have many complaints of the branch drains stopping up.

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6610. You have not used any authoritative interference?—No, but many have asked me what I should like to have; and I have generally advised them. They are competent generally to judge for themselves.

6611. Have the branch drains of late years been frequently pipe drains?—Not generally; they generally use a flat piece of stone for the bottom and brick for the sides. Some of them put in a circular drain; some of them put in pipe drains; but I think more are put in in the old square shape than in any other.

6612. Speaking of drains that lie within the boundary of the ancient borough, should you have much confidence in their good construction and well working?—No, I would not have confidence in a vast number of them.

6613. (*Chairman.*) There are a great many instances, in the books kept by the inspectors of nuisances, of complaints founded upon nuisances caused by obstructions of the drains; almost every week they occur?—The fault of that very generally is the want of having proper traps or grates to them. What they put into them is the evil of it.

6614. (*Mr. Simon.*) They have not water supply in immediate connection with them?—No doubt that is the great want in this town.

6615. Do not you think it would be very much to the advantage of the town that the details of house drainage should be under your direction?—There should be a good deal more supervision. I memorialized the council about three or four months ago so as to make some alteration in my situation. I think there should be a great deal more supervision than I am able to give over the drainage of this town. I believe the corporation have formed some sub-committee, of one or two of the committees that I generally act under, to take my memorial into consideration. I dare say something will be decided in the council on Wednesday next, and I hope in a short time we shall have that proper superintendence over those sort of things which we have not, I am sorry to say, had hitherto.

Mr. Robert Wallace further examined.

7th March 1854.

6616. (*Chairman.*) Have you caused inquiries to be made with reference to the number of water-closets in this town supplied with water, either from rain, well, or spring water cisterns; or, in fact, in any way, except from the Whittle Dean company?—I have. (*Delivering in a return.*)

6617. Does this return apply to the old borough only, or to the whole of the Parliamentary borough?—It applies to a part of the outskirts as well as to the old borough.

6618. Does it apply to all the town district, or inhabited part of the borough?—Yes.

6619. And the total number of water-closets having water supply not derived from the Whittle Dean water company is 255?—Yes.

6620. The inquiry was made by an acting sub-inspector of police?—It was.

6621. And you have no reason to doubt that the return is perfectly correct?—No.

6622. And this again is a return of the scavenging, is it not?—It is.

6623. From which it would appear that in 1853 there were eight streets which were swept seven times a week; thirty-nine streets which were swept six times a week; thirty-seven which were swept three times a week; twenty-five which were swept twice a week; and sixteen which were swept once a week; beside which Sandgate and the lanes there were swept daily, and the Quayside lanes and public stairs three times each week?—Yes, that is correct.

6624. And this extent of scavenage you wish, for the sake of showing the improvement that has taken place, to compare with the extent of scavenage in 1846, when no streets at all were swept seven times a week; when only sixteen were swept six times; thirty-three swept three times; thirty-five swept twice; sixteen swept once, and the rest of the streets not swept regularly at all, but only when it was considered necessary.—Yes.

6625. You also state that you now employ one inspector, thirty-six scavengers, and thirteen cartmen; or in all, fifty persons, as compared with twenty-one in 1846?—Yes.

6626. You did not, however, sweep all those streets so often, nor had you the same scavenging staff before the cholera broke out in August last, as you did after?—No.

6627. And you have not prepared a statement applicable to that earlier time?—No, I have not.

John Clayton, Esq., Town Clerk, sworn.

J. Clayton, Esq.

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6628. (*Chairman.*) Referring to your Local Act of 1837, and to section 94, the council is there authorised to remove houses and buildings situate about Union Street, and to erect a new market house; has that been done?—Yes, at a total cost of 16,600*l.*

6629. Referring to the 96th section of the same Local Act, the town council is there authorised to make a street extending from the end of Collingwood Street to the Scotswood Road; is that done?—Yes.

6630. A street commencing from Newgate Street, crossing Fenkle Street and Westgate Street, and terminating at the Scotswood Road; that has been done?—It has.

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6631. A street extending from the Bigg Market to Westgate Street; is that done?—That has not been done. Estimates were made for it; it was found that it would be very costly, and upon consideration it was thought that the communications to the west were sufficient by means of Collingwood Street and the street last described.

6632. A street commencing at the east side of the Scotch church in Blackett Street, and terminating in a junction with Percy Street and Northumberland Street?—That has not been done; its cost was found likely to be more than equivalent to its public utility.

6633. A street extending from the west end of Blackett Street to the Cowgate and the Military Road; was that made?—That has not been made for want of funds.

6634. A street commencing at the public quay, near Burn Bank, and terminating in Manor Chare?—The corporation have made some purchases with a view to completing that street ultimately.

6635. A street commencing on the west side of Pilgrim Street, nearly opposite to All Saints' church, and terminating on the Quay Side?—That has not been done.

6636. A street extending from the last mentioned street to the Sand Hill?—That has not been done.

6637. A street extending from the south end of Trafalgar Street to the Stock Bridge?—That has not been executed.

6638. A street extending from the east end of Manor Streetand the west end of the Manor Chare, terminating at the New Road, near the east side of the Jubilee School?—That has not been executed, but arrangements are in progress.

6639. A street extending from the south side of the New Road, near the termination of Gibson Street, to the river Tyne?—That has not been executed.

6640. A street from the foot of Dean Street to the north end of Tyne Bridge?—That has not been executed.

6641. A street from the Tyne Bridge to the head of the Side?—That has not been executed.

6642. A footway from the Sand Hill to the Northumberland County Courts?—That has not been executed.

6643. A street from the Bath Lane to Stowell Street?—Nor has that been executed. The corporation took authority in that Act for as wide a range of improvement as they thought could possibly be effected.

6644. Then as to the improvement of certain streets under section ninety-seven of the same Act, as to streets called the Manor Chare and Cowgate respectively; has that been done?—That has been partially carried out.

6645. Pilgrim Street, from the Manor Chare downwards, by taking down certain houses?—Something has been done there.

6646. How many houses have you taken down?—I can scarcely say how many. The access to the Manor Chare from Pilgrim Street has been greatly improved by what has been done.

6647. Then as to Nuns Gate or the Bigg Market?—That has been executed, at a cost of some thousand pounds.

6648. The widening of Cross Street?—That has not been done. Cross Street has become a back street, and the improvement of it has become a matter of no importance, owing to the execution of another street.

6649. Completing Grey Street?—That has been done.

6650. Arching a passage way from Grey Street to the White Hart?—That has been done.

6651. Extending and enlarging the public quay, commencing a little westward of a place called the Town's Yard, and terminating at the Ouseburn?—The whole of that has not been carried out, because it has not been yet required; but it has been carried out to a very great extent. The public quay has been extended, and it has been straightened. The previously existing quays by the side of the river have been taken away, and a public quay in a straight line has been built.

6652. Making and erecting a quay near Dent's Hole?—That has been done.

6653. And making warehouses and buildings on the quay?—Some buildings have been erected.

6654. Then under the next section have you opened out the new hall or library of the Philosophical Society in Westgate Street?—That has been partially effected; but operations have been delayed in that part of the town by the railway operations. Now that they are entirely developed, we are carrying out the improvement to a greater extent even than was contemplated by that Act. There is also a further extension of the Quay contemplated, which involves the purchasing and removing of a great deal of Sandgate. The corporation have now very nearly acquired the whole of Sandgate by gradual purchases. I mean the whole of the south part of it between the river and the street of Sandgate. The north part they do not meddle with. We have got the plans for carrying out the improvement, and this spring we hope to be able to accomplish the whole. The acquisition of the property, miserable as it looks, has cost a vast sum of money.

6655. Then referring to the Local Act of 1841, section 14, has the town council made a street commencing at Burn Bank and terminating at Manor Chare?—That is the continuance of the previous power in the Act of 1837, for the carrying out of which they are purchasing the property.

6656. Then a street from Stowell Street to Bath Lane, is that also a continuance of the previous power?—It is.

6657. As to a street extending from the Quay Side through Sandgate to the township of Byker?—Arrangements are now making with the landowners to carry that out. There was an indisposition at one time on their parts, which I think is now removed. When we renew the Act we renew our powers; and we scarcely ever have occasion to resort to a compulsory power, as Mr. Dobson will tell you, who purchased for the railway company through this town. In no case had he to go to a jury.

6658. As to a street from St. Nicholas Square to Castle Street and Hanover Street?—That is not made. It is partly effected by the operations of the railway company; and there will be complete access from St. Nicholas Square to Castle Street and Hanover Street, by the completion of the approaches to the High Level Bridge, which are now in of course arrangement between the railway company and the corporation.

6659. A street from Forth Lane to Forth Banks?—There has been a street partially made, and the footway very much widened. That access has been very much improved.

6660. A street from East End to Moseley Street, crossing the Manors, Pandon Dean, and the New Road, and terminating at the Swirle in Sandgate?—That is a continuance of the previous power. They are now making arangements to execute that.

6661. A street from the last-mentioned street to the Causey Bank?—That is in the same state.

6662. Under the 17th section, as to the widening of certain streets; the first is St. James's Street; has that been done?—That has been done.

6663. Strawberry Place?—Yes.

6664. Albion Street?—That is done.

6665. Percy Street?—No.

6666. Gallowgate?—That is partially done.

6667. Bigg Market?—Bigg Market and the Nun's Gate are mixed together there. The improvement is in both. That improvement has been effected.

6668. The Close?—A great deal has been done in the Close.

6669. And the public quay?—And a great deal at the public quay.

6670. Proceeding to the Local Act of 1846, the first forty or fifty sections contain powers to the corporation to become gas-makers and gas-work owners; has anything been done under that?—The corporation appointed a committee to negotiate with the gas company, and that committee and the gas company, after a prolonged negociation, came to an agreement subject to the confirmation of their respective principals.

6671. About what time was this agreement?—Soon after the passing of the Act. The inhabitants thought that the price which the committee proposed to give was large, and the result was that the council did not confirm the agreement. The pressure from without was so considerable that gentlemen could not vote as they thought it wise to vote. I believe probably the inhabitants think otherwise now, but at that time it could not be carried. I am quite satisfied that the feeling of the council was in favour of it; but the pressure from without was too considerable, and motives were ascribed to members of the council of which they were quite incapable; but still it influenced their votes, and it was lost. Those are evils inseparable from a popular form of government.

6672. Then as to section seventy-two referring to improvements of the streets?—It is chiefly a renewal of previously existing powers. The new powers apply to St. Ann's Street, which has been widened, and the making of a new street from Clayton Street West to Neville Street, which has been executed also.

6673. And as to a street from New Bridge Street to Princess Street, has that been executed?—That has not been executed.

6674. From New Bridge Street to Queen Square?—No.

6675. From Saville Court to the public baths?—That has not been executed; the matter is in course of arrangement now.

6676. The schedule C alluded to in the next section 73 has reference to the same streets?—Yes.

6677. Has the Sand Hill been widened?—In parts.

6678. Has the Manors been widened?—Considerably widened.

6679. Has the Wide Open in St. Ann's Street been widened?—It has.

6680. Has Westgate Street been widened and altered?—It has.

6681. Has the Postern been widened and altered?—Yes.

6682. And Orchard Street?—And Orchard Street too.

6683. Then the Local Act of 1850, section 5; was the street therein alluded to made, a street commencing in St. Nicholas Square, and extending to Castle Street?—That is the approach to the High Level Bridge, erected by the railway company, to which I have alluded. Inasmuch as the approach to the bridge would increase very much the produce of its toll, the corporation thought it was the interest and duty of the railway company to execute it, inasmuch as they would get the benefit. The railway company, on the contrary, thought it a public improvement, that they had done a great deal, and that the corporation ought to execute this. That difference of opinion between them occasioned a delay of some time, but I think probably they are coming now to a conclusion upon the principle of dividing the expense.

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6684. Then as to the streets there mentioned, Neville Street and Westgate Street, which you were empowered to widen, those are the same that were alluded to before?—Yes; those powers have been executed to a certain extent.

6685. Either under the powers of this Act, or of previous Acts, the thing has been one to a certain extent?—Yes.

6686. Referring back again to the Local Act of 1837, section 22, as to the thickness of party walls which the council were empowered to enforce with regard to houses or roofed buildings thereafter to be built in the borough, what steps have been taken under that?—I am not aware of the council having been called upon to take any step. The power to sue for penalties is given solely to the town surveyor.

6687. What has the town surveyor done?—The town surveyor has inspected from time to time the new buildings, and for the most part the builders have complied with his suggestions. Until recently, few of the new buildings, except those erected by Mr. Grainger, were of a larger annual value than 30*l.*, and nine inches is the usual thickness of party walls in the new buildings. No penalty has been enforced under this clause. No doubt in some instances, which have escaped the notice of the town surveyor, the Act has not been complied with.

6688. When you state that the builders have for the most part complied with his suggestions, was it known at the time that any of them had not complied?—It was never brought before the council that any of them had not.

6689. (*To Mr. Town Surveyor.*) Were you ever aware that any of the builders have refused to comply with your suggestions?—No, I am not aware of any.

(*Mr. Town Clerk.*) This clause is rather arbitrary and excessive in its requirements. I do not think the council at the time would have agreed to its being passed unless the discretion had been solely with their officer to enforce it.

6690. (*Mr. Simon.*) Does this clause extend in its operation to the townships?—It does.

6691. (*Chairman.*) It says, "Every house, manufactory, or other roofed building "which shall after the passing of this Act be built or rebuilt, within the said borough?"—The interpretation of "borough" in that clause is the borough by its new boundaries. This was after the Municipal Reform Act.

6692. (*Mr. Simon.*) So that it included the townships?—It included the townships.

6693. (*Chairman.*) Then as to the 97th section of the Local Act of 1846, empowering the council when it should appear to them conducive to the public health, and might tend to prevent or check infectious or contagious disease, "to order the occupier of any "dwelling-house within the said borough, to whitewash, cleanse, and purify the same" under penalties, and so on, what steps have been taken by the town council, and what penalties exacted thereunder?—I am not aware of any penalties which have been exacted by them. When it has appeared to them conducive to the public health, and likely to check contagious disease, they have either cleansed and whitewashed the houses at their own expense, or got the owners to do it. It would be in vain to endeavour to enforce penalties against such a tenantry as occupy those houses.

6694. (*Mr. Simon.*) Is there any account of the whitewashing and cleansing done at the expense of the corporation in the four years from 1849 to 1853?—There would be no separate account, but probably it might be collected from the town surveyor's books.

An account was afterwards put in, by the town surveyor, of the lanes and alleys white-washed, &c., between the 14th September and the middle of November 1853, during the cholera time, but none of any previous whitewashings, &c.

6695. Is it believed that any houses whatever were whitewashed between 1849 and 1853?—Yes.

6696. (*Chairman.*) No penalties, however, have ever been exacted under the clause as to whitewashing and cleansing?—Just so.

6697. Referring to section 109 of the same Local Act, what byelaws have been made for laying down rules for cleansing filthy and unwholesome dwellings?—No byelaws have been made.

6698. Nor for fixing pecuniary penalties for the breach of such laws?—No, for the reason I have given, that the pecuniary penalties must be against the occupiers; and a byelaw to compel occupiers of that class to keep their houses clean would be of no avail.

6699. (*Mr. Simon.*) Then do you look upon it as a clause that is directed to occupiers rather than owners?—Yes.

6700. (*Chairman.*) I do not see exactly how you make that out. No doubt the 97th section, as to the whitewashing, cleansing, and purifying of dwelling houses, is specially directed against the occupiers of those houses; but there is no such limitation in this 109th section that I see; and considering that, if there had been any such, it would have rendered this part of the 109th clause a mere repetition of the 97th, I do not see why one should assume the existence of any such. The clause simply enacts that the council shall be empowered from time to time to make byelaws for laying down rules for cleansing filthy and unwholesome dwellings, and to ascertain and fix what pecuniary penalties shall be incurred by persons breaking such laws; and it does not prescribe that such cleansing shall necessarily be done by the occupiers rather than the owners, does it?—No.

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6701. Keeping to the same clause, what byelaws have been made for regulating lodging houses, and keeping them clean and wholesome; and what penalties fixed and enacted?—No byelaws were made as to lodging-houses till September last. As far back as 1851, the subject was under the consideration of the council, but they felt themselves in very great difficulty owing to the want of a definition of what a common lodging-house was.

6702. (*Mr. Simon.*) But in this section of your Local Act your powers are not restricted to "common lodging-houses" only, but extend to "lodging-houses" generally?—The evil of overcrowding was oftenest found to exist in a separate room, where you had an Irish family residing, who admitted all of the same nation; but you had no means of showing that they received any pay for that occupation.

6703. You would reckon a lodging-room to be a lodging-house in the sense of that Act, should you not?—I should doubt very much whether a room occupied by a family, who chose to admit whom they pleased into it, would be a lodging-house. I am without any means of showing that they take money for it. The difficulty has arisen also under the Common Lodging-houses Act, and the opinions of the attorney and solicitor-general have been taken upon it. They say, "It seems difficult to suppose that the Act which refers "to common lodging-houses was intended to apply to single apartments, so that every room "in a house might become a separate common lodging-house. On the other hand it is to "be observed that it is by the second section provided that part of a house, 'if used as a "common lodging-house,' shall be included in the operation of the Act; and it is also true "that both under the law relating to burglary, and also with reference to the exercise of "franchises, the separate apartments of lodgers where the landlord did not reside, have "been held to be dwelling-houses. Considering, therefore, that apartments thus let and "occupied are especially within the mischief intended to be remedied by the Act, we think "that an attempt should be made to treat them as common lodging-houses, and to enforce "the provisions of the Act with respect to them against the tenants who thus admit "lodgers. At the same time we feel bound to say we entertain considerable doubts as to "the result."

6704. (*Chairman.*) Then restricting the interpretation of the word "lodging-houses" here to those houses in which the landlords or occupiers of the tenements admit that they take pay from their lodgers, have any byelaws been made for regulating them?—I stated before that no byelaws had been made for the regulation of lodging-houses in this borough, nor, as I believe, in the boroughs of Tynemouth or Gateshead, where you have the Public Health Act in operation.

6705. (*Mr. Simon.*) Then what you have done in respect of lodging-houses has been done under the public common lodging-houses statute?—Whatever has been done has been done under the public Act, and we have made no byelaws or regulations under that Act.

6706. (*Chairman.*) What has been done under the 32d section of your Local Act of last year?—Under this section proceedings were taken between the 17th of September and the 23d of October to shut up forty rooms, as unwholesome and unfit for human habitation.

6707. I find, from the books which you sent me, that between the 17th of September and the 30th of November eighty rooms within and twenty-two rooms without the ancient borough, or altogether 102 rooms, had been shut up as unfit for human habitation?—Yes.

6708. (*Mr. Simon.*) Have byelaws been made for regulating the mode of keeping swine?—Yes; they were made on the 4th of October 1848.

6709. (*Chairman.*) That was in the time of the then epidemic of cholera?—"That it "shall be lawful to keep swine within the said borough upon any plot or parcel of ground "inclosed for that purpose, and situate at a distance of not less than thirty feet from every "dwelling-house or dwelling-room, and from every public street, lane, road, or way, near "to such plot or parcel of ground, or in any building situate at the like distance from "every dwelling-house or dwelling-room, public street, lane, road, or way. And that "swine shall not be kept within any dwelling-house within the said borough, or in any "room or building occupied by man; or in any room or building being under the same "roof with a room or rooms occupied by man." Then it is provided "That every person "who shall keep swine within the said borough in any dwelling-house, room, building, "or place prohibited by the preceding order or byelaw, or in or upon any plot or parcel "of ground, building, or place without the limits prescribed by the preceding byelaw "for the keeping of swine, shall forfeit and pay the sum of 5*s.*, and shall also forfeit "and pay the sum of 2*s.* 6*d.* for each day that swine shall continue in such dwelling-"house, dwelling-room, building, or place prohibited as aforesaid; or upon any ground, "or in any building or place without the said prescribed limits, after a printed or "written notice by the town clerk for the time being of the said borough, to remove the "same, shall have been given to such person, or left at his or her place of abode." I believe that in no case has there been occasion to proceed further than that notice. I have signed an immense number of notices, and I am told that as soon as they get the notice they remove the swine. No penalty has been enforced that I am aware of. Of course I do not know what passed before the magistrates, and I am to be understood as speaking only of what passes within my own knowledge.

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6710. (*Mr. Simon.*) In the books before us kept by the inspectors of nuisances, during the few days of the late epidemic preceding that period when you took charge of the town; namely, in one book between the 12th and the 23d of September, and in the other two books between the 16th and 23d; we find very many cases of swine being illegally kept, and in which it was requisite to serve notices. Are you aware of that?—No; I have nothing to do with putting the Acts into execution, further than signing the notices. I have signed an immense number of printed notices as to swine.

6711. (*Chairman.*) Within the last few months?—At all times I have signed them, but I have signed a great many within the last few months.

6712. Turning to the subject of sewers, as to the number, situations, lengths, and so on, of sewers and drains constructed, repaired, altered, cleansed, or completed, under the Local Acts of 1837, 1841, &c.; all that, I suppose, you leave to the town surveyor?—The return which you have gives the total, but it does not give what has been done under one Act and what under another. There will be no difficulty in letting you have it accurately.

6713. Then as to what sewers' rates were levied?—Upon the average the sewers' rates are 1,180*l.* a year.

6714. And the rateable property in the borough seems to be about 140,000*l.* Is that so?—I cannot say precisely, but it is increasing every day.

6715. But taking it at 2*d.* in the pound, it yields 1,180*l.* a year?—That is on the average of the last five years; it is very much larger now.

6716. Then referring to the Local Act of 1846, the 92d and 93d sections, enacting that the owners of all houses existing or thereafter to be built within the borough, should provide them with sufficient privies and ash-pits, to the satisfaction of the council, and with reference to the new houses to be built, that they should have funnels or flues, for carrying off upwards any offensive stench, and so on; what steps were taken by the town council under that?—I am not aware of any order made by them upon either of those sections.

6717. (*Mr. Simon.*) Does that apply to the whole borough, including the townships?—Yes.

6718. Do those sanitary clauses, for instance section 109 of the Local Act of 1846, apply to the townships also?—Yes.

6719. (*Chairman.*) Am I to understand that these Local Acts all refer to the parliamentary borough, that they include the whole borough, townships and all?—Some of the clauses do; except that the streets and highways, and everything in the streets and highways are excluded.

6720. (*Mr. Simon.*) But in the operation of all clauses relating to the condition of houses the entire borough is included, townships and all?—I think so.

6721. (*Chairman.*) All of these Acts, the Acts of 1837, 1841, 1846, 1850, and 1853, apply to the entire Parliamentary borough with the exclusion of streets, highways, and sewers?—Yes.

6722. Then taking section 106 of that same Act of 1846, by which it is enacted: "That it shall be lawful for the council to cause any house or building, which shall be "built or erected contrary to the provisions of this Act, to be taken down or altered "according to the provisions of this Act;" are you aware whether that has ever been put in force?—Not that I am aware of.

6723. Even where houses have been built without proper ash-pit and privies, and flues for carrying off the offensive stench?—I am not aware of any such case ever having been brought before the council.

6724. Has the council taken any steps to ascertain whether any such houses have been built?—The council would have received any report upon the subject from the town surveyor, and I am not aware of any having been made.

6725. They have not originated any inspection for the purpose of ascertaining whether or not houses had so been built?—No special officer has been appointed for that purpose.

6726. Have any instructions been issued to the town surveyor to make any inspection of that kind, with a view to ascertain whether those clauses, 92 and 93, had been properly carried out?—I should say not emanating directly from the council; what may have been done by committees, I cannot say.

6727. (*To Mr. Town Surveyor.*) Have you ever received any special instructions, either from the town council or from any committee of it, directing you to inspect houses which, after this Act of 1846, might be built in the borough, with a view to ascertain whether there were attached to those houses proper privies, with doors and coverings to the same, and also ash-pits, together with proper funnels or flues for carrying off upwards any offensive stench?—I cannot say from memory whether I ever received any special order upon the subject or no; I might have done.

6728. (*To Mr. Town Clerk.*) Then with reference to the 94th section, empowering the council to order privies and ash-pits, and receptacles for refuse, to be cleansed by the occupiers of the houses or property, upon penalties and so on; have any steps been taken under that?—I believe steps have been actively taken by the officers, but I do not think there is any express order of the council on the subject. I do not find any recorded in their books.

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6729. (*To Mr. Town Surveyor.*) Have you ever caused any inspection of premises throughout the borough to be made, with a view to ascertain whether the privies, ash-pits, and receptacles for manure and refuse, were properly emptied and cleansed from time to time?—I have frequently noticed it in passing round the town, but I cannot say that I ever had any particular and special instruction upon it.

6730. (*Mr. Simon.*) Has there been any servant of the corporation acting under your directions as an inspector, systematically to look into these things?—No.

6731. (*To Mr. Town Clerk.*) With reference to section 109 of the Act of 1846, what byelaws have been made for regulating the management of public privies, what penalties fixed for the breach thereof, and how have they been enforced?—The corporation, having all the public privies in their own hands as their own property, have managed them themselves, and have needed no byelaws, and have made none. This is a plan of the town, shewing all the public privies, twenty-one in number. You see in that plan where they are placed; and I do not think you will find any district in London so well supplied.

6732. Not with public privies, you mean?—Not with public privies; I do not know anything about any other privies.

(*Mr. Town Surveyor.*) Those were all built previously to 1853, except one.

6733. (*Mr. Simon.*) We have found that a good many of these have been complained of as nuisances, some of them for years together; can you point out, on this plan, which of these have been complained of?—I have not heard of any.

6734. (*Chairman to Mr. Town Clerk.*) Referring to section 104 of the same Act, by which it was enacted that it should be lawful for the council from time to time to cleanse rivulets and streams, drain stagnant pools of water, and remove all filth and to enter upon any premises in the day time to do necessary acts, and so on; what steps have been taken under the powers of that clause?—The only case in which we have had occasion to consider that clause is that case in front of Lovaine Row that you have heard of.

6735. What Mr. Matthias Dunn and others complained of?—Yes. That stream is an ancient stream turning two or three mills, and was in former days a stream of pure water. The Government erected the barracks near it fifty years ago, and carried the sewers of the barracks into that stream; from that hour it became a polluted stream. It flowed through private property down to the river. The piece of ground in which the nuisance alluded to by Mr. Dunn arose was a piece of ground which some fourteen or fifteen years ago was purchased by the inhabitants and the corporation jointly, and conveyed to trustees for the purpose of preventing buildings being erected in front of Lovaine Row. The owner of it, who was also the owner of mills below, reserved the existing dam upon it for the use of his mills; he reserved the right of using that dam as he had theretofore done. The example of the Government was followed; other houses put their sewers into this burn, and it finally became very filthy; but it could not be considered a stagnant pool. It was a running stream, and was stopped only for the purpose of using the water for the mills. Then what does this clause enable the council to do: "That it shall "be lawful for the council from time to time, as they may think fit, to cleanse any "rivulets and streams of water, and drain any stagnant pools of water;" this is a rivulet or stream of water; "and remove all filth within the said borough." If the council had cleansed this one day, the sewage water would have fouled it the next; so that the putting this clause in force would have been of no effect whatever in removing the nuisance. The board of guardians, who then were putting in force the Nuisances Removal Act, found that Act equally ineffectual for this purpose, and it could only be done as it was done by the council: that is to say, by an arrangement with the proprietor of the soil, with the owner of that dam. They got him to give up his right to use it, and they were at the expense of arching it over, making an arch large enough to contain this stream; and the proprietor placed his dam in another situation far removed from buildings.

6736. (*Mr. Simon.*) Is that the stream which eventually becomes the stream of Pandon?—The same stream.

6737. Is not it still open at Stockbridge?—Further down it is.

(*Mr. Inspector Charlton.*) Not at Stockbridge; at Pandon Dean.

(*Mr. Town Clerk.*) In carrying out this operation the corporation spent about 600*l.* in covering it over. They removed the nuisance for a considerable part of its course; there may be parts of its course still open.

6738. (*Mr. Simon.*) There is another such stream I think, which passes under Gallowgate, coming from Darn Crook?—It is a sewer altogether; I never saw a stream there.

6739. (*To Mr. Town Surveyor.*) Is that a sewer which passes by Darn Crook?—There is no burn there now; it is merely a sewer.

6740. About the flooding of the cellars there?—That is at Newgate Street.

6741. Is the sewer there so superficial that it floods the cellars?—It used to be formerly small, but there has been a new one built about two or three years ago; there has been no flooding since that.

6742. A month ago the cellar was full of water?—I am not aware of that.

6743. Is the position of that sewer such that it would be likely to flood the cellars of the houses there?—There might be a chance of its doing so if there were a great land flood.

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6744. We have it in evidence that the water rises in a court there so as to flood not only the cellars but the rooms on the ground floor?—I am not aware of that, except from a land flood. I am not aware of any other cause; there has been two or three times a land flood. It is a very low part there, and it will happen sometimes. We have now arrangements for carrying up some sewers which probably will have a tendency to stop the water coming on the surface; but all these things take time. There is a certain sum to be expended in each year.

6745. (*Chairman to Mr. Town Clerk.*) Then as to the bye-laws for scavenage, the penalties fixed and exacted, and so on, under the 109th section of the Local Act of 1846?—The scavenging is in fact in the hands of the corporation. I had better, perhaps, take the opportunity of putting in the different byelaws made applicable to street nuisances and other matters. The first set of byelaws was made on the 2d of August 1837. We have a great objection here both to rates and penalties; the public have a great prejudice against both.

6746. Were these byelaws made under the Local Act of 1837?—Yes; probably you will find it refer both to the general powers of the Municipal Act and the Act of 1837. The next which I put in are some further byelaws made in 1837; these are byelaws relating to hackney coaches. There are some further bye-laws as to hackney coaches, and some byelaws as to gaming; these are bye-laws as to steam-boats plying on the river (*producing the same*).

6747. Then, in fact there have been no byelaws made as to scavenage under the Act of 1846?—The scavenage is in the hands of the corporation; save so far as any of those bye-laws may possibly relate to scavenage, none have been made.

6748. Referring for one instant to section 77 of the Act of 1846, as to the council providing lands for the deposit of dung, ashes, and filth to be taken by the scavengers, what has been done under that?—It is very difficult to find any place of deposit for dung which shall be popular. The council, at the time of the passing of that Act, possessed grounds in various parts of the borough for the deposit of ashes and filth, and stone, and other materials for the streets and highways; but the bulk of the ashes and other matter collected by the scavengers has been delivered direct into railway waggons and conveyed into the country; and negociations are now pending with the railway company to have the whole disposed of in this manner. I may also state that there is an immense quantity removed from this town by the farmers' carts. The town surveyor perhaps will be here to say what depôts he has used in the town for that purpose.

6749. (*Mr. Simon to Mr. Town Surveyor.*) Will you mention them?—There is a depôt at Glasshouse Bridge, and it is carried off there by barges. The Newcastle and Berwick railway have taken a good deal away, and the Newcastle and Carlisle railway also. They have a depôt; so much is paid per cart load. We cannot sell it; in short we are compelled now, in many places, to pay for it. At the town moor and Castle Leazes we sent a great deal for the use of the common. They do not make any charge for it. At St. Lawrence we have to pay. We have one also at Mr. Plummer's at St. Lawrence.

6750. (*Chairman.*) How many have you within the parliamentary borough?—Six; one at the Glasshouse Bridge; another at the station of the Newcastle and Berwick railway; then the Newcastle and Carlisle railway, there is another siding there; then at Elswick, along the Scotswood Road, there is one; another on the town moor, Castle Leazes, near Gallowgate; and another at St. Lawrence.

6751. (*Mr. Town Clerk.*) Are there any other places within the borough that you think would be less objectionable for such deposits?—Not any.

6752. Have you chosen them with a view to be as little nuisance to the public as possible?—We have. Now we have come to this, that there is an arrangement pending with the Newcastle and Berwick railway company, to take the whole down to the water. Their managing man has had a good deal of conversation with us about it, and we hope in a short time have it finally settled; so that the whole may be taken down and put upon land belonging to the corporation.

6753. (*Mr. Simon.*) Could you give us any notion of the quantities that have been removed by the railway?—Many a time we could not find waggons for it; we are very often at a loss for that. We have got rid of between 18,000 and 20,000 loads in the year.

6754. How much of that has gone by the railway?—I could not tell. The Inspector of scavenging could tell perhaps. The last year we led out 6,877 loads on the paved streets; macadamized streets 4,153 loads; 8,172 from what we call the Spital ashes heaps.

6755. (*Chairman.*) Have you any contractors for that purpose?—No, we work by our own people; there is an inspector of scavenging.

6756. Are there any contractors for the emptying of privies and ash-pits?—None.

6757. In fact, at this moment there is no system or arrangement whatsoever for the systematic emptying of privies and ash-pits?—There is not; we hope very shortly to have something of that kind done.

6758. (*To Mr. Town Clerk.*) As to streets, not being highways, which might have been levelled, flagged, and paved under section 58 of the local Act of 1846, can you state what has been done in respect of that?—Rye Hill Street, containing 809 yards in length and twenty-seven feet in breadth, in the year 1847; Shield Street, containing 572 feet in length and thirty feet in breadth, in the year 1849; Picton Street, containing 241 yards in length and forty-five feet in breadth, in the year 1849; Gibson Street, containing 285 yards in length and eighteen yards in breadth, in the year 1852; Howard Street,

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containing 188 yards in length and thirty-three feet in breadth, in the year 1852; Richmond Street, containing 184 yards in length and thirty-three feet in breadth, in the year 1852; Little Blagdon Street, containing 100 yards in length and fifteen feet in breadth, in the year 1853; Orchard Street, containing 170 yards in length and thirty-six feet in breadth, in the year 1853; Terrace Place, containing seventy-five yards in length and thirty-six feet in breadth, in the year 1850. All those streets have been completely levelled, paved, and flagged.

6759. Then as to streets which remained unlevelled, unpaved, and unflagged at the outbreak of cholera?—East Ballast Hills, 366 yards in length; Albion Row, 217 yards in length; Quality Row, 216 yards in length; and Regent Street, 216 yards in length.

6760. With reference to slaughter-houses and knackers' yards, and as to the regulations which may have been made under the 109th section of the Local Act of 1846 for the regulation and inspection of them, for keeping them in a cleanly and proper state, and for removing the filth therefrom at least once a week?—I never heard a slaughter-house complained of. I think there are some nuisances which are absolutely unavoidable; they must to a certain extent exist, and I believe the slaughter-houses are as well conducted here as in any town in the country.

6761. Have you ever made any byelaws for their regulation?—No.

6762. With reference to the smoke consumption and noxious effluvia prevention clause in the Local Act of 1846, section 89, what has been done?—Under this section, in 1848 notices were served on several persons, including owners and masters of steam-boats.

6763. Have any notices been served in the years 1849, 1850, 1851, 1852, or since then?—No. There was great discussion in the council, and great difference of opinion as to the propriety of putting that clause in force. Many of the councillors were afraid of injuring the manufacturing prosperity of the town; some of them said it was impossible to construct any furnace to consume its own smoke.

6764. Did the rest of the council believe them when they said so?—There is so much difference of opinion, and inasmuch as no step can be taken but by order of the council, there is considerable difficulty in putting that clause into execution. It was adopted after much discussion; and it was with great difficulty that the council agreed on its insertion in the Act at all. It was not expressed in such a way as made it very easy to convict under it. But in the last Act which has been obtained there is a very full and comprehensive clause, which has been obtained with the serious intention of putting it into execution. There would be great difficulties in some manufactories. Nobody has been able to invent anything to cure the smoke of a glass house, yet there is no exception of glass-houses. The same may be said of potteries.

6765. In fact, since 1848 the power has been left in abeyance?—It has been in abeyance there is no doubt of it.

6766. Have you a return of all the monies, personal, official, and parliamentary, spent in or with reference to framing, soliciting, or obtaining the several Local Acts of 1837, 1841, 1846, 1850, and 1853?—Here it is.

The same was delivered in, and is as follows:

	£	s.	d.
Town Improvement Act, 1837	1391	3	1
Ditto, 1841	1294	3	4
Ditto, 1846	1233	7	4
Ditto, 1850	972	14	0
Ditto, 1853	1534	10	4
	£6425	18	1

6767. Those include the whole expenses?—The whole expenses. I may observe that the parliamentary fees are heavy in consequence of the practice of charging a separate set of fees for every separate object, and in some of the Acts you will see a great many objects embraced.

6768. This includes all law and other charges here and in London?—Every expense of every sort.

6769. Proceeding to the public Common Lodging-houses Act, the 14th and 15th Victoria, chapter 28, you stated to us that in the year 1851 you had put it in force with regard to compelling the registering of houses, did you not?—Yes. On the 8th of October 1851, notice of the Common Lodging-house Act was given to all the keepers of common lodging-houses in the town. A register of Common Lodging-houses was opened and inspectors appointed, and in the year 1851 a lodging-house keeper was convicted, as you have heard, in a penalty of 40s. On the 14th of September 1853, byelaws for the regulation of common lodging-houses were passed. The subject, as I have said before, had been previously discussed in the council, very soon after the passing of the Act, and from the feeling that the Act would not enable them to remedy the evil, they did not pass any resolutions to regulate the common lodging-houses.

6770. Under the ninth section, authorizing the local authorities to make regulations for the well ordering of them and for the separation of the sexes therein, and under the tenth section for imposing penalties on offenders against the said regulations, there has nothing been done?—Nothing has been done till September last, till the outbreak of cholera.

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6771. (*Mr. Simon.*) You have two or three times mentioned inspectors of one sort and another, will you tell us what inspectors you have altogether?—There are two inspectors of lodging-houses.

6672. Do they fulfil any other duties than those of inspectors of lodging-houses?—I cannot answer that.

(*To William Pattison.*) Are you an inspector of lodging-houses?—Yes.

6773. Do you do any other duty besides that?—No.

6774. (*Chairman.*) When were you appointed to your present office?—In September last.

6775. (*Mr. Town Clerk.*) Did you cease to do duty as a policeman as soon as you were appointed an inspector of lodging-houses?—Yes.

6776. So that you have done no duty as a policeman since September last?—No.

6777. And is it the same with the other inspector?—Yes, just the same. He has one part of the town and I have the other part.

(*Mr. Town Clerk.*) Then we have two inspectors of provisions.

6778. (*Mr. Simon.*) Do they do other duties?—Yes.

6779. What are their other duties?—They are inspectors of police; it is a part of their duties to inspect the provisions. Then we have the three inspectors of nuisances. Then the town surveyor has an inspector of scavenging.

6780. There have been three inspectors of nuisances since September the 23d 1853?—Since the council took upon themselves to carry out the Nuisances Removal Act. That was previously left in the hands of the board of guardians.

6781. Do they do any other duties?—I do not think they do; they take the sanitary regulations altogether.

6782. Who inspects the public privies?—(*Mr. Town Surveyor.*) One of our men looks after them every week; he looks after the pants and the public privies. He is one of the ordinary workmen.

6783. (*Chairman to Mr. Town Clerk.*) As to the thirteenth section of the Common Lodging-houses Act, I wish to ascertain whether anything was done under that clause, which enacts that, "The keeper of a common lodging-house shall thoroughly cleanse all "the rooms, passages, stairs, floors, windows, doors, walls, ceilings, privies, cesspools and "drains thereof, to the satisfaction of and so often as shall be required by or in accordance "with any regulation or byelaw of the local authority;" and also lime-wash the walls and ceilings in the first week of April and October. Has anything been done under that?—I have no means of knowing.

6784. Have the town council or the local authorities interfered to enforce that section?—They would leave it to the inspectors altogether, who, I should believe, would enforce it whenever it was necessary.

6785. Was any record kept of the proceedings taken between October 1851 and August 1853, as to carrying that out?—It is not at all under my cognizance, therefore I cannot answer the question.

6786. No regulations or byelaws were made to enable it to be carried out?—No.

6787. Then as to the permissive and discretionary powers of an Act of the same year to encourage the establishment of lodging-houses for the labouring classes, when and to what extent, if ever, have the town council availed themselves thereof?—They have not done so at all. The council have not yet considered the provisions of the Act with a view to their adoption. Their surplus revenue has been absorbed for other purposes, and they have not proposed a rate for the purpose of investment in the erection of lodging-houses. They have the power of imposing a rate for the purpose, but they have not thought it expedient to do so, thinking that the present law is ineffectual for subduing the evil, and that a law restricting the number of inmates within a room of a certain size is the only mode of remedying the evil of overcrowding. You cannot do it under the Lodging-house Act.

6788. (*To Mr. Town Surveyor.*) I find from this document of yours that since the passing of the Local Act of 1837 the council has sewered fifty-three streets, measuring together five and a quarter miles; is that correct?—It is.

6789. The number of streets which remained unsewered on the 31st of August 1853 was twenty-one, consisting, as you here state, chiefly of obscure streets at the extremity of the borough, the whole length of such streets being 1,480 yards. Is that so?—It is.

6790. Is the length of the whole of the main sewers, at this moment existing in the borough, about fifteen and a quarter miles?—Yes. There are a good many more small ones.

6791. What is the number of the houses within this borough, or, firstly, within the limits of the old borough?—We have 6,045 houses.

6792. Of those houses, how many have drains of any kind or sort?—3,551.

6793. And how many are without drainage of any sort?—2,494.

6794. Then in the townships without the old borough, but within the parliamentary borough, what is the number of houses?—About 3,408.

6795. How many have drains?—1,910.

6796. And what is the number of those not drained?—1,498.

6797. Altogether, then, you compute that there are 9,453 houses in the whole borough, of which 5,461 have surface or other drains, either from the house, or yard, or premises, while 3,992 have no drains of any kind or sort?—That is so.

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6798. (*To Mr. Town Clerk.*) What were the difficulties to which you alluded in respect of enforcing the powers of the Local Act of 1850, section 16, as to compelling branch sewers to be made?—Since the passing of the Act of 1850, a good many branch drains have been made; but the clause is not so clearly expressed as one could have wished, inasmuch as it does not quite appear that it is to be a branch drain for every house; and therefore we got in the last Act a very clear and explicit clause, which, I have no doubt, will be easily carried out. In framing these Acts of Parliament, our course is here for the council to call upon the inhabitants to discuss their provisions, so as to avoid any dispute in Parliament, and we have so far succeeded in that; otherwise our expenses of local legislation would not be so trifling as they are, compared with expenses incurred in other places. But it has also occasioned some obscurity of clauses, which you must not blame the council for. We have sometimes a clause without a penalty. The inhabitants, as I have said, have the usual prejudice against both rates and penalties.

6799. (*Mr. Simon.*) So that, if we find clauses which are ineffectual, we are to attribute it to your constituents' interference?—Under the particular circumstances They were as good as we could carry them at the time, as we were determined not to have a fight in Parliament.

6800. Do you believe that your present Local Act is effectual for sanitary purposes?—We should be glad to have it more so, but in getting it we had a considerable clamour in the town against us. We got as much as we could, and I think it will answer every purpose.

6801. It seems to us that the two great sanitary evils of the place relate to overcrowding and to want of drainage. What powers does the town council now possess to prevent that overcrowding, of several Irish families, for instance, in a single room, to which you have adverted?—I do not think we can meet that, unless some general law be passed. With respect to the drainage, we have it in our own hands, and we believe that we are doing it very effectually.

6802. Will you tell me what power you have to compel a drain to be connected with a privy?—I am not sensible of the necessity or advantage of having a drain to a privy; but I think the council have a power, under the 36th section of the last Act, to require the owner of any house or ground (they are very general terms) to make a drain to such part of the house as they please, or the ground attached to it. If he shall not execute the drain in such manner as the council may direct, they may execute it themselves; and if they fancied to make a drain to a privy, I think they might do so. I do not think they had such a case in their contemplation when framing that Act as making a drain to a privy; they would rather have water-closets.

6803. Have they power under that Act to order the adaptation of water supply to a privy?—I do not think they have any power to do that.

6804. If what has been represented to us is true, viz., that in certain parts of the town the great sanitary evil consists of the accumulation of ordure from privies and ash-pits round about the houses, you have no additional powers to cure that evil?—I do not think we have; we can only encourage its cure by getting the water company to charge as little as possible for water-closets. That company have an Act before Parliament next session in which probably the corporation will get some clauses of that description introduced, that they shall be compelled to supply water-closets at a very small sum. The high pressure enables the water-closet to be constructed at a much less cost.

6805. (*Chairman.*) You have stated, with reference to the powers for that purpose conveyed by previous Local Acts, that you have found difficulties in getting privies and ash-pits emptied, owing to there often being several occupiers in the same house, sharing the use of the same convenience, but who will not agree to share the expense of emptying them. Does the Act of 1853 give you any extended or improved power in that respect?—It does not. We are just in the same situation as the other towns of the neighbourhood, but we shall have to adopt the system which they have only recently adopted at Liverpool, and Manchester; and we have had the officers of those towns who superintend that department over here to advise us; we shall have to throw upon the town the burthen of taking away all those things; you cannot rely upon individuals.

6806. Referring then again to the Local Act of 1846, section 66, you will see that there is no penalty attached?—I should state probably, that in many cases the council submitted to clauses being directory without a penalty. You might perhaps enforce them by indicting the party for a misdemeanour for breaking a clause in an Act of Parliament; you might get a remedy sometimes without a penalty.

6807. Just refer to the 66th section of the Local Act of 1846 directing the owner to give notice to the council before laying out any street; no penalty is attached to that?—No.

6808. On receiving that notice the council is authorised to make regulations for the levels, &c.?—Yes.

6809. And then in the 68th section there is an enactment fixing a penalty for any breach of the order of the council?—Yes.

6810. But as there is no penalty attached to the former clause directing the owner to give notice, you seem to have a penalty and actually have it not?—Yes.

6811. Who is responsible for such a piece of legislation as that?—I confess that I will not take the responsibility of it. I would not shrink from any responsibility that belongs to me. I remember—in discussing both the Act of 1837 and subsequent Acts—several cases of penalties being expunged at the instance of the inhabitants. This probably is one of them The inhabitants thought there were penalties enough already.

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6812. Then I see in the same Act of 1846, section 81, it is enacted that it shall be lawful for the council, from time to time, not to *compel* a man to drain his house into the sewer, but to "*empower*" him to do so?—Yes.

6813. Do you think that that utterly unmeaning enactment was introduced owing to any such a compromise?—It is possible.

6814. So that you have been obliged to have another Local Act of 1850, section 16, and a further Act of 1853, sections 36 and 38, in order to enable you at length to get the power which ought to have been obtained right off in 1846?—We tried in each case to improve our position. We did not go to Parliament positively for that, but for some other object.

6815. Passing on to sections 92 and 93 in the same Act of 1846, you direct that the owners of existing or new houses shall provide privies and ash-pits, but you fix no penalty if they do not provide them; whereas, in the 94th clause, you fix a penalty if they do not empty the privies, which you have taken no power to compel them to provide?—Yes; but we assume that they must provide them. We might indict for a misdemeanour, I think, upon those two clauses.

6816. (*Mr. Simon.*) Have you ever done so?—No; we are rather a peaceable people than otherwise, and we have had no occasion to do so.

6817. (*Chairman.*) Again, referring to your last Local Act, the Act of 1853, I notice that in the beginning you incorporate two sections of the Towns Improvement Act with reference to sewers?—Yes, from the Towns Improvement Clauses Act.

6818. Can you give us any idea why the other very admirable powers as regards sewers and drainage, in that Towns Improvement Act, were not also embodied?—I will see if I have any means of doing so; perhaps I may.

6819. Out of the twenty clauses of the Towns Improvement Act having reference to sewers and drains, you incorporate two which seem to us among the least important of the whole?—We thought that we already had all other necessary powers, though it was not originally thought so as to some of them.

6820. Referring to section 45 and others of the Towns Improvement Clauses Act, which direct that all branch drains and so on shall be kept in order, and be under the survey of the commissioners, who would be the town council in this case, and so on, do you think that you have got all those powers?—We think that we have enough for our purpose; at least that was the opinion of the council.

(*Dr. Robinson.*) There is one point as to the Towns Improvement Act; there is a power, with reference to mortgages on the rates, for enabling the council to carry out at once such works of improvement, and such a clause is in the Public Health Act also.

6821. (*Chairman to Mr. Town Clerk.*) Do you think that you have, under your Local Act, the power to which Dr. Robinson alludes?—I think we had the pecuniary means to carry it out.

6822. By this same Towns Improvement Act, sections 42 and 43, the council might have been empowered to compel the owners of houses to provide privies and ash-pits on penalties, and in the 33d section of your late Act you merely enact that it shall be lawful for the council to order the occupier of any hotel, tavern, inn, public house, beer-house, or eating-house to erect proper privies?—Yes. The power was more extensive in the Bill as originally drawn, but it was considered to be an interference with the rights of the subject and of property, and it was limited to public houses.

6823. You think you would have had difficulty in incorporating the 42d and 43d clauses of this public statute, though you incorporated the 22d and 33d?—Local legislation is attended, as you are aware, with great difficulty. "Commissioners may borrow money by mortgage of sewer rates;" that was in our last Act originally, and was struck out under the circumstances which I have stated. The people said it was not right that we should get the town into debt, and, *primâ facie*, it is desirable to avoid getting into debt.

6824. That is the answer to the previous question of Dr. Robinson?—That is the answer to the previous question, and in a minute or two I shall find an equally satisfactory answer, I have no doubt, to the other question.

6825. I wish to know the reason why you would not go the length of taking section 53 of the Public Health Act, or section 42 of the Towns Improvement Act, instead of taking only the limited powers of section 33 of your late Local Act?—We had that 42d clause of the Towns Improvement Act in our original Bill, precisely in its very words.

6826. You would have taken the powers then if you could have got them?—Yes.

6827. Only your constituents were not wise enough to let you have them?— No.

6828. Was there any power taken or attempted to be taken with reference to regulations for burial, beyond what you now have under section 40 of your Act, which contains but a faint allusion to the greater powers which are given in the Towns Improvement Act. The 40th section of your Local Act of 1853 is to this effect, that after the expiration of one year from the passing of the Act no vault or grave, and so on, shall be constructed within twenty yards of any church or chapel, and so on?—We thought ourselves very lucky to be able to carry that. It was very much objected to by many persons, and we thought that that would remedy the evil almost entirely, and it will do so.

6829. Will you further explain to us why, in the section 65 of your Act, you do not take powers to compel the landlords of tenemented property below 6*l.* annual rental, to supply their tenants with water, and themselves to become responsible for those rates, as well as for the other rates with which they are thereby saddled?—At Manchester, under the Health of Towns Act, they adopted the principle of raising the money necessary for water works as a charge upon the town, by a rate upon the town. Then they administer water to everybody. Now here the water supply is in the hands of a company and not of the town, and therefore we could not impose a water rate. And if we had proposed a clause to oblige every owner of property to take in the Whittle Dean water, which is the only water they could have had, we should have had a great clamour in the town. I durst not have proposed such a thing. They would have told me that I had been employed by the Whittle Dean water company if I had proposed such a thing.

6830. (*Mr. Simon.*) But there are such laws in force in other towns?—If the water was in the hands of the town there would be no objection to it; but I see the utmost difficulty under any other circumstances.

6831. But in the City of London the Local Act empowers the Commissioners who administer it to call upon every householder to provide his house with water, no matter where it comes from, so that the supply be to their satisfaction: would not such an enactment be applicable here also?—I think we should never submit to such a law forcing us to take water.

6832. (*Chairman.*) In the Bill of the year 1853, at the 56th section, I find this enactment proposed, that after the passing of this Act it shall not be lawful to build, or occupy as a dwelling-house, any house in any court or alley narrower than thirty feet, through which there shall not be an open passage at each end thereof, at least twenty feet wide, and entirely open from the ground upwards. Then in the 24th clause of the Act which you got, as distinguished from the Bill, the thirty feet wide is reduced to twenty feet, and the open passage at each end is entirely done away, and an open passage of at least fifteen feet wide only substituted. We should like to know, if you can state them to us, any circumstances which led to that paring away and spoiling of what would have been a very useful clause?—There was a great discussion upon it, and both Lord Redesdale and Mr. Bouverie objected to minute building clauses.

6833. One is not more minute than the other. It is a question of words inserted in italics. The one proposed that you should have alleys for the future thirty feet wide, with twenty feet openings at either end, that is the Bill. The Act provides that it need only be twenty feet wide and fifteen feet at one end?—I can only state at present generally that those clauses were very much discussed, both here and before the chairmen of committees in the Houses of Lords and Commons. Clause 24 is the lesser one. You like the Act less than the Bill. Not so, the inhabitants of this town. I thought your question alluded at first to the width of streets, which there was more discussion about than about this; but I will refer to the minutes and tell you what was done. It is reducing the space.

6834. It is not merely a reduction of space. The one refers to "building or occupying;" the other to building only. The one would have been a cogent and most valuable clause; the other will practically be of no use at all?—I shall find that it was objected to very strongly, I have no doubt. It was not an accidental or inadvertent change, but it was done after interviews with the owners of property who were willing to submit to the clause as it was altered, but would not submit to the clause as it was originally drawn.

6835. Ultimately the town council will have to fight owners of property if they are very obstinate?—They seem to think that this will do very well as it is; they thought that twenty feet and fifteen were plenty, instead of thirty and twenty. The word "occupy" was omitted in order to prevent its applying to existing buildings, which they would not submit to. It would, as a gentleman said, have amounted to a confiscation of a man's property.

6836. Yes, and under present circumstances, where districts are literally not fit for human habitation, the property ought clearly to be subject to confiscation until it is put into a better condition. Have you got those minutes?—Yes; they refer to the Bill, when it was much more voluminous than the print you have in your hand; therefore I have a difficulty in turning to the clause, but I have no difficulty in stating that from memory.

6837. In the same way, with reference to burials, I see by the 151st section of the Bill that it was proposed to incorporate the Cemetery Clauses Act?—It was.

6838. Was that proposal abandoned for the same causes?—It was the general opinion that it was sufficient to prevent any interment taking place within twenty yards of any dwelling.

6839. (*Mr. Simon.*) Have you any regulation for your cemeteries in the suburbs?—They belong to companies.

6840. And have you no control, no way of regulating them?—Not the smallest; but they are perfectly well conducted, and I never heard of any complaint against them.

6841. There are two, I believe?—There are two.

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6842. What is their area?—The Jesmond cemetery contains within its walls ten acres, and then they have six acres without the walls, which they can add to it when they please.

6843. And the other?—The other is a smaller one; only about three or four acres, without any means of increasing it.

R. P. Philipson, Esq.

RALPH PARK PHILIPSON, Esq., sworn.

6844. (*Mr. Town Clerk.*) You are a magistrate and a member of the town council, and have attended to the execution of your duties as a magistrate, and experienced the difficulties of doing anything effectual under the Common Lodging-house Act. Will you state what your experience has taught you?—The question is, what is meant by the term "common lodging-house;" does it mean a whole house, or is that term sufficiently comprehensive to include rooms occupied by separate families, and into which rooms the inmates take lodgers? Again, does it mean houses where they take them in continuously, or where the lodgers come to them only occasionally; and again, does it mean houses where they take lodgers in for the sake of remuneration, or where there is merely a crowding of the rooms or houses, by the friends and relatives of the parties?

6845. (*Chairman.*) First, whether "lodging-house" means and includes a lodging-room?—Yes.

6846. And secondly, whether you can call that a lodging-house, or a lodging-room, where no payment is made, or can be proved to have been made, by those who come and go?—Yes.

6847. Those are the two points?—Those are the two points; and we have felt, and I think correctly felt, that it would be exceedingly dangerous, and a stretch of the law to hold that in the case of a room the Act was sufficiently extensive to apply to it. I doubt it exceedingly. Of course I think also, speaking as a magistrate, that I should act exceedingly wrong if I strained the law and attempted to fine a person, when I was convinced in my own mind that the law itself was defective, and did not give me authority to do it.

6848. (*Mr. Simon.*) That being the case, would you have thought it desirable, when a Local Act was about to be obtained for this borough, that in that Act some clause should be inserted, defining exactly what might be done within this borough for the purposes in question?—I should have thought it exceedingly undesirable. I think that the term "lodging-houses," ought to be defined by the legislature as applicable to the whole kingdom, and that we should not have one definition of it to govern Newcastle, and another law to govern Gateshead, or any other place in the kingdom.

(*Mr. Town Clerk.*) We did attempt a defining clause; and Lord Redesdale said that we must not have one law here, and another elsewhere, and he objected to it.

6849. (*Chairman to Mr. Philipson.*) With reference to the interpretation clause in this Common Lodging-houses Act, which provides that in any case in which only a part of a house is used as a common lodging-house, the expression "common lodging-house" shall include the part so used of such house; would not that, in your opinion, go to show, that the legislature contemplated the inclusion of common lodging-rooms within the meaning of the term "common lodging-houses?"—I cannot, of course, tell what the legislature contemplated; but the point is what the legislature have done. It leaves it just where it began. "The expression, 'common lodging-house,' includes in any case in "which only a part of a house is used as a common lodging house, the part so used of "such house." But you must come to the conclusion, what is a common lodging-house? For instance, you have an Irishman who lives in a room; some of his cousins, or his wife's cousins or relations come and stay with him, and they come probably in some cases in too great numbers, and they stay in that room. I say that you cannot consider that a common lodging-house, and that we have no power over it.

6850. You have suggested to us two difficulties in the construction of the Act: first, as to whether a lodging-house means a lodging-room; and secondly, as to whether you can interpret a house or room to be a lodging-house or lodging-room, in which no pay is, or can be proved to have been, taken for lodging; and I ask you does not that interpretation clause specifically contemplate the interpretation of the term lodging-house in such a way as to include lodging-room?—I think it does not.

6851. It seems to me that there the legislature in that clause obviously contemplated that a part of a house might be used as a common lodging-house, and come under the enactments for the better ordering of such places, even though that part of a house should be only a single room; and I wish to get from you, as a magistrate, your deliberate opinion upon that point?—That is not the difficulty, because you must first of all decide that it is a common lodging-house or a common lodging-room, and so the difficulty meets you in either case.

6852. In respect you mean of the taking or not taking pay for lodging, and in respect of a continuous or discontinuous lodging?—Precisely.

6853. (*Mr. Simon.*) But irrespectively of that public statute, you have by your Local Act a control over lodging-houses, have not you?—What is it?

(*Chairman.*) The Local Act of 1846, section 109.

6854. (*Mr. Simon.*) Five years before the passing of that public statute, I think, you took power by a Local Act for regulating lodging-houses?—"For making regulations "for the registering of lodging-houses, and for maintaining cleanliness therein, and "keeping them in a wholesome condition."

6855. Did you make any regulations for those purposes?—No; this Act of Parliament is discretionary in the council; it is not obligatory. Directions were given to the police that they should see that all the lodging-houses were registered, and the police were also directed to inspect the lodging-houses and to see that good order was kept in those houses. There was a discretion with respect to the framing of regulations with regard to cleanliness, and of course questions arose here, as they do everywhere, as to the precise mode in which that could be best done.

6856. Should you, as a magistrate, find it in your power under this law to act upon the representations of the police as to the want of cleanliness in a house without any regulations having been made for ensuring cleanliness?—I take care, as a magistrate, not to commit any person without seeing that he has committed an offence. By registering the houses we accomplish the object, because in addition to that it was followed up by the inspection of the police regularly.

6857. (*Chairman.*) What would have been the result of that inspection by the police, supposing for instance they had found a house dirty, no regulations having been passed to compel the washing of the premises even once a month, or to point out the proper mode of ensuring cleanliness generally?—The expression "dirty" is a very trivial one; it must of course go much beyond that before there can be any offence at all.

6858. Supposing they had found a house (in the precise language of the Local Act) uncleanly and not in a wholesome condition, what would have been the result of the police inspection, supposing there were no regulations for ensuring cleanliness under which you could convict or fine?—I have no doubt that practically the end of it would be, that the person having had attention called to it, and knowing that the eyes of the police and the authorities were upon him, would attend and cure it. I could not fine him.

6859. Then, in fact, you think the power taken to frame byelaws for regulating lodging-houses is practically superfluous?—I think it is a difficult matter to make byelaws for the regulation of lodging-houses. On the one hand I think it is quite right you should frame them, as far as practicable, to promote cleanliness; on the other hand, you have a certain class of persons who must have somewhere to go to. They cannot be taken in at lodging-houses of the best character, they are too low and degraded a part of the population; and yet they must not be left to sleep in the streets, or against limekilns and other similar places.

6860. Is there any other point on which you wish to offer any evidence?—Yes; I wish to say that I am an *ex officio* member of the board of guardians, and that I attended at the meetings during this outbreak; that this town, as well I believe as every other in the neighbourhood, was imperfectly prepared for it, and that I account for it very much in this way: It was known that the cholera was approaching this country, and yet we were left by the Board of Health without any definition of the cholera, without any definition of how it was to be treated, without any suggestions as to establishing a house-to-house visitation, or any other method whereby we might best grapple with the evil. Mr. Grainger came down here; I inquired myself of him on that subject; I inquired of him, for instance, if it was contagious; he would give no opinion upon that subject; it had not been settled by the Board of Health or determined by the College of Physicians, and therefore, although on that depended the question of whether persons were to be sent to hospitals or attended at their own houses, yet we were left to grapple with it as we best could. The good feeling of even this degraded class which we have heard of to-day solved the question, and the people were attended at their own houses, the persons having the moral courage to stay and to give them all proper attention. I think that that circumstance was, to say the least of it, an unfortunate one. At the board of guardians occasionally, a complaint was made that some one or other had administered improper medicine. I applied to Mr. Grainger again, and I also made the same application to Dr. Gavin, and I requested them, if they found it was improper, to take a pen and write down what was proper, what they would recommend to be taken in the premonitory stage, what in the second, what in the third or spasmodic stage. They declined taking any such responsibility, and properly enough. I think that that also is unfortunate; but I wish to say of both of them that I think that they exerted themselves to the utmost of their power, and of Dr. Gavin I would add that I think he introduced habits of order, method, and regularity, and that he was very serviceable during the epidemic; but I think it right also to add, that when I heard him say that the board of guardians had done everything in their power during the epidemic, but that he would have been glad to have seen more zeal and more energy on the part of the corporation, he acted very unjustly, I think, towards the latter body. When this epidemic broke out, it was felt by the board of guardians and also by the corporation that to grapple with it at all it must be done by one united body, and that it would be injudicious to have one authority sitting in Pilgrim Street, and another in Sand Hill, giving it might be distinct and different or conflicting orders. Accordingly, the corporation decided that it should be carried out under the direction of the board of

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guardians, who had the proper power, and that the corporation should limit themselves to doing acts which the board of guardians had not the power to expend their funds in doing.

6861. There was a joint committee, was there not, formed of the town council and the board of guardians?—Yes; and having been a member of both bodies, I beg to say, most distinctly, that there was as much zeal and energy in the one as in the other; the fact being doubtless that the board of guardians did more because they had within their authority a great deal more to do: full one half of the board of guardians were members of the corporation, and are not likely to have been zealous in the one character and deficient in the other. The chairman of the board of guardians is a member of the corporation; the vice chairman, and several of the most active of the board of guardians, are also members of the corporation; and I think that that was an unfair observation on the part of Dr. Gavin. Another remark I think it right to make. During the time when this epidemic prevailed here, it was essential and proper, as far as could correctly be done, not to exaggerate, but if practicable to tranquillize the minds of persons, and that alarm should not unnecessarily be spread. The Board of Health in London published an account in which they stated that the deaths by cholera were so many in a day, and during a corresponding day of the former epidemic so many. I complained to Dr. Gavin of that. I told him that on the former break-out of the cholera, I mean in 1831-32, the population was not half so extensive; that the outlying townships were not then included in the borough; that there was no registration of deaths then as in the past year, and that the former returns were merely the voluntary returns which happened to be made by surgeons resident in the town; and that I thought it exceedingly unfair that those reports should be published, comparing two things bearing no analogy, and that it ought to be correctly given. I repeated the complaint to Dr. Gavin. He told me that he had submitted the observation to the Board of Health, but the result was that they thought fit to make no alteration, but to continue that publication after they knew that it was an unfair comparison. I thought it was an unfair thing to the town.

6862. (*Mr. Newton.*) Do not you know that many parties died of cholera without being egistered at all?—I do not believe a word of it. I believe that every person who died was registered and interred. If you ask my belief, I disbelieve it utterly.

(*Mr. Newton.*) There is the assistant overseer in the room, who can verify my evidence, that many parties died who were not registered.

(*Mr. Philipson.*) I do not think it at all.

6863. (*Mr. Town Clerk.*) Is it likely that parties were registered as having died of cholera who had not done so?—I think that is more probable. It amounts to this, then, that it is quite idle talking here about registration of lodging-houses or anything else, because you have a distinct law requiring registration of deaths, and imposing penalties for non-registration; and yet this is said not to have been done. But I do not believe it. There is another observation which I wish to make, and it is this, that we hear about houses being unwholesome and unfit for human habitation. I wish to state the difficulty practically which I have felt on that question. You have a complaint made of a house that it is unwholesome and unfit for human habitation, and you have, I do not say my riend Mr. Newton, but you have some of the profession who come and so describe it, and they give reasons for the belief that is in them. You have, in answer to that, proof submitted to you by the owner of that house, that it has been inhabited for a series of years, that the occupant has enjoyed his health, and at the moment is in good health; and then you are asked to adopt the theory of the medical gentlemen, against the absolute fact that the parties have enjoyed good health, and to condemn the house. I say that that is an unpleasant and difficult case, and not very satisfactory.

6864. (*Mr. Simon.*) Are we to understand that many cases have been brought before the magistrates under circumstances of that kind?—Not many, but there have been some.

6865. Would it be in your power to refer to those cases, where medical officers have brought reports before you of houses unfit for human habitation, where there had been no illness in the house?—I cannot recollect the names, but I know it has been so. The medical officers are not required to say there is or has been illness in the house, but that the house is unfit for human habitation; and so you have conflicting evidence.

6866. (*Chairman.*) I see by the corporation books that between the 17th September and 30th November 1853, 102 rooms were condemned and closed as being so unfit for human habitation. Have you any recollection during that time how many cases there might have been in which you had the conflicting evidence to which you allude?—I cannot say that. In many cases the parties are poor, and offer no opposition. The opposition, if it is got up, is the opposition of the landlord.

6867. Looking down the book I find that a large portion of these houses, or rooms, are said to have been closed with the consent of the owner; can you remember in that recent period any single instance of what you were alluding to?—I have no doubt that an instance of that sort can be shown, because I have been on the bench myself and had the case before me.

6868. (*Mr. Simon.*) Did you consider it for the advantage of the town, that during the prevalence of the late dreadful illness, the powers of the Nuisances Removal Act should be enforced by the corporation?—It may be more convenient for the corporation to enforce them. I do not see any objection to it.

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6869. I understood you to say that you thought the greater powers possessed by the corporation made them a more eligible board for the administration of such powers?—I think perhaps they are; but I think it is an erroneous supposition to imagine that the corporation have unlimited funds, and are able to apply them to the purposes which have been suggested. I agree however with your question.

6870. You consider it an advantage that the Act should be enforced by the corporation rather than by the board of guardians?—Yes; I am of that opinion.

6871. As having ampler powers for the purpose, and a larger staff?—Yes; they could perhaps apply some of their officers to it more conveniently.

6872. Do not you think from that and similar principles that it would have been for the advantage of the town that, during the five or six years intervening between the epidemic of Irish fever and the late epidemic of cholera, those powers should have been exercised by the corporation?—You cannot blame the corporation for not exercising powers until they acquired them. I do not see that it made any substantial difference in which body they were vested, it is merely a question as to the execution of them.

6873. (*Chairman.*) Taking the year 1848, in which they did acquire the powers under the Nuisances Removal Act, do you think that since the 4th September 1848, it would have been desirable that the town council, with their larger staff and ampler powers, should have taken upon themselves the execution of that Act instead of leaving it to the guardians?—I do not think there would be much difference whether the authority was in one body or in the other. The transfer from the one to the other did not augment the means at the disposal of one or the other.

6874. (*Mr. Simon.*) Why then was it transferred?—I do not remember. I dare say very much as a matter of convenience. It was thought, perhaps, that the corporation could better carry it out, the board of guardians having other matters to attend to, as to the relief of the poor, and various other duties with which this is not analogous.

6875. Can you suggest any reason why it should have been thought desirable in September 1853, in the crisis of the epidemic, that the town council should take upon them the execution of the Nuisances Removal Act, and why it should have been thought not desirable that they should do so in the five years previous?—That assumes that it was thought not desirable, and I cannot grapple with a question of that sort, because I do not believe it was ever gravely put to the council that they should do it. If it had been gravely put to the council that they should do it, I dare say they would have consented to it; but I have no recollection of it at all.

6876. Is there any other point?—No. I should not wish to be understood as agreeing with the description which has been given of this town. I have lived in it all my life, and have been certainly very much surprised at the evidence which has been given.

6877. (*Mr. Town Clerk.*) Have you occasionally visited Sandgate?—I have been through it occasionally. Probably I am not so well acquainted with the names of the places as Mr. Newton; but as to having been through them all, I certainly have. There are a great many lanes in Sandgate running up from the river, which supplies them with a current of air. There is no part of the town where the corporation has spent more money than in Sandgate. Some years ago there was an intervening row of houses between it and the river, the whole of which have been removed at the expense of thousands, and fresh air is brought up daily by the tide, and circulates through all those alleys. I have seen as healthy people in Sandgate as in any other part of Newcastle.

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6878. (*Mr. Bateman.*) What is your profession?—I was originally a land surveyor, valuer and agent. In addition I am now a brick and drain tile manufacturer, and owner of a small landsale colliery. I have been engaged in business in this town as land and house agent since 1827.

6879. (*Chairman.*) Did you give evidence before Mr. Rawlinson at the time of his official visit here in 1849?—It is quite possible that I did. Until you mentioned it, it had completely escaped my memory.

6880. But now you remember it to be the fact?—I have no doubt I did; I took a great interest in the question.

6881. Had you at that time paid considerable attention to the town in respect of drainage and other matters?—Nearly ever since the period which I have mentioned, viz. 1827, my attention has been directed to the application of land in the neighbourhood to building purposes, to the means of draining the land and making streets and to all other requisite matters.

6882. Will you shortly make whatever statement you may wish to make to the Commissioners?—The property of which I have had the management has consisted amongst other things of a good deal of tenement property.

6883. In what part of the town?—In the eastern part of the town entirely; the parish of All Saints and the township of Byker. There is not any sewerage in the township of Byker, with the exception of one or two very short ones.

6884. That is out of the old borough?—It is.

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6885. Are there not a good many sewers in All Saints East?—Yes, there are sewers there.

6886. But very few drains from the houses into the sewers?—I am not myself aware that that is the fact; but I suspect that there are very few, from what I know of the manner of building the houses there. It has not been the practice here to make branch drains from each house as a matter of course.

6887. Have you yourself been cognizant of the actual form of construction of many new houses or rows of houses in those districts?—I have seen several in building. I have not built any myself, but I have examined them very often.

6888. Are you aware of the accommodation which has been provided in those houses for the inhabitants?—The usual accommodation in the new houses is a small yard with an ash-pit and privy.

6889. Has there been ordinarily one to each house in the new buildings?—In the better class of tenement houses in that district that has for some time been the practice.

6890. (*Mr. Bateman.*) Do you mean about the gaol?—No; eastward of it; Gibson Street and about that locality.

6891. (*Chairman.*) Richmond Street, Buxton Street, Blagdon Street, and all about there?—Yes.

6892. (*Mr. Bateman.*) And is it with reference to that property that you state they have that back yard accommodation?—A great many of the houses there I know have the accommodation which I mention; I do not know that every house has, but I know that that was the principle laid down as a rule for building those houses. They have since become tenemented houses many of them; they were not at first intended for tenemented houses.

6893. The character of the houses has fallen off?—In certain parts.

6894. And the accommodation now existing is not sufficient for houses of that description?—It cannot be. I cannot speak to it in any special case now from recent examination, but that must often be the result where more families than one live in a house originally intended for one only.

6895. (*Chairman.*) I see in the evidence given before Mr. Rawlinson, that the question was put whether the corporation had the power, under its own Local Acts, of regulating lodging-houses. Upon that you replied, "There is a clause in their new Act," meaning the Act of 1846, "which gives them that power, but it is a dead letter." Have you any opinion to offer upon that subject now, namely, as to whether that power of regulating lodging-houses was put in force any better, between December 1849 and August 1853, than at the time you alluded to, viz., previously to December 1849?—In 1849 I was a member of the council, and had the means of knowing then what the council did. At the present time I am not, so that I only know by reports that certain proceedings have recently been taken with regard to lodging-houses.

6896. When did you cease to be a member of the town council?—In the end of 1849. I was rejected in November 1849.

6897. You also gave some evidence with respect to the then state of the sewerage in Brandling Place. You said that some houses had been built there after the election of 1826 for the purpose of obtaining votes, and that they were in the lowest possible condition?—I believe they remain at the present time just in the same state. There is not any sewer in Brandling Place.

6898. (*Mr. Deputy Town Clerk.*) They are constructing a sewer now, are they not?—But it does not exist yet, or at any rate it is not finished.

6899. (*Chairman.*) Then again, before Mr. Rawlinson, you referred to the question of the consumption of smoke, and you complained very much that the powers given to the corporation under the Local Act of 1846 had not been put in force for that purpose?—Yes.

6900. Are you aware whether or not since that date, December 1849, those powers have been put in force any more than before?—I know they have been put in force occasionally, because I was one of a committee in the council for doing so in one or two instances. That must have been in 1849.

6901. Is that the case of a chimney in Grey Street?—There was something done about a chimney in Grey Street, I believe.

6902. We had evidence from Sir John Fife very distinctly, as to that one case of a chimney in Grey Street, viz., that he took part in putting down the smoke nuisance there, and that he was complimented by his fellow citizens and fellow councillors on the success which he had achieved; but hitherto we have no evidence as to any second case?—There has not been any general supervision of chimneys; but at the time that I was in the council, *i. e.*, previous to November 1849, the rule was to take such matters only in hand as were brought before the council by complaint.

6903. Can you, of your own knowledge, affirm that in any second instance the smoke nuisance has been abated under the powers of that Act?—I believe at one time, though I cannot speak for certain whether the proceedings became such as to have any action on the part of the council, that a chimney near the Ouse Burn viaduct was prevented from delivering smoke and a disagreeable smell; and there was an instance somewhere near Gallowgate, that was interfered with.

6904. (*Mr. Deputy Town Clerk.*) Anderson's Mill, in Gallowgate. Perhaps you will recollect if I mention the names?—I know there were cases, because I went to the ground with some members of the committee in consequence of complaints, and arrangements were made which prevented the smoke being so bad. The principle that the council laid down was this: "When a complaint is made we will enforce the law." At that time I objected to that practice. I said, "You make it invidious in individuals; "you should carry the law out without reference to individual complaints."

6905. (*Chairman.*) Those are all the points which I see alluded to in your eviden before Mr. Rawlinson. Can you speak of the comparative sanitary state of this town in the year 1849, and in the month of August 1853?—I believe in 1849 the sanitary state was very good, so far as I recollect. It was a year or so after the Irish fever, and after the cleansing that went on about that time.

6906. What was its state in August 1853; had it improved from the condition in which it was in 1849, or had it retrograded and become worse?—I cannot give a very short answer to that question, because I have opinions upon the point that qualify any expression which I might make use of. I do not consider that in 1853 there was any greater accumulation of house refuse in any particular part than usual; but in 1853 there was a greater supply of water in the town than in 1849; or at all events, in 1853 there were places which had water, which had none in 1849. That is what I mean; that there was a greater distribution of water throughout the borough in 1853 than in 1849.

6907. The use and application of it for house purposes was more extended?—Yes; and the effect of that additional supply of water, under the circumstances of the season of 1853, would be to make the accumulated house refuse more injurious to health than if there had not existed so much water for domestic supply.

6908. (*Mr. Bateman.*) You think that house refuse when comparatively dry is less injurious than when wetted by the additional supply of water?—Formerly the refuse from the tenement houses in the borough was generally very dry in character, apparently an ash-heap that you could walk over without any soiling of your boots and shoes; but latterly the effect of having more water has been to change that character of the house refuse, and to give it a greater tendency to decomposition and offensiveness.

6909. What you mean is that, with an additional supply of water, there ought to have been a greater activity in taking away the refuse by house drainage, scavenage, and so on?—Decidedly. I should think that if you have refuse in a state of moisture, you run more risk of injuring health than if you have it in a state of dryness.

6910. (*Chairman.*) With reference to the question which I put to you as to the comparative state of the town in 1849 and in 1853, you have stated that you do not think that the accumulations were greater in 1853; but you have not said whether they were any less?—In 1853 they were not less, but there was a removal of them in 1849 to a greater extent than in the earlier part of 1853.

6911. Were there then actually greater accumulations remaining about the town in August 1853 than there were in December 1849, when you gave evidence before Mr. Rawlinson?—I should think there were, in the total.

6912. Then in respect of the accumulations of refuse, from time to time remaining about the town, the sanitary state of it had, to a certain extent, retrograded since 1849?—Yes; but that remark would apply more to parts to which the houses had recently extended than to the old streets. The old streets, I have no doubt, were in as good a state as in 1849; but where the houses had been carried to, there was accumulation where there had been none before.

6913. Then do you still affirm that the sanitary state of the town, in respect of accumulations, was worse in August 1853 than in December 1849?—I think it was, because in August 1853 there had not been the same measures of cleansing adopted which were taken in 1849.

6914. Do you wish to speak to any other point?—I am surveyor of roads, by a recent appointment, for the township of Byker.

6915. That was outside the old borough; the council had no control over the streets or roads there till last year?—Excuse me; they had control, or might have had it, twenty years ago.

6916. That is to say, they might have obtained a Local Act to give them power?—The corporation did obtain a Local Act, soon after the Municipal Reform Act waspassed, for enabling them to take the roads of the townships by arrangement with the townships.

6917. Had they taken them?—They did not take them.

6918. Had they never attempted to enter into arrangements for that purpose?—Applications were made by some of the townships to the council to take the roads, but at that time they did not do so.

6919. (*Mr. Bateman.*) You speak of Byker?—Yes, and Heaton, and, I think, Jesmond also.

6920. (*Chairman.*) Do you say that the inhabitants, or any portion of the inhabitants of Heaton, Jesmond, or Byker, ever made application, to the corporation to take the management of their thoroughfares and highways, without the corporation immediately complying with it?—They made application, I think it was in 1839, to have an arrangement made for consolidating the whole of the roads. The application was made from the vestry, by a parish meeting.

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6921. What I understand you to say is that, in the year 1839, two years after the local act of 1837 was obtained, the inhabitants of the township of Byker, at a parish meeting, resolved to call upon the corporation, and did call upon the corporation, to enter into an arrangement for the purpose of undertaking the charge of the roads and highways in Byker?—Yes.

6922. And the corporation did not comply with that application?—I do not know what passed upon it, but we did not get any arrangement made at that time. Recently, they have considered that it was advisable to have the roads under their control; and in September of last year, as surveyor of the township of Byker, I was ordered by the council to see to the cleansing of all the roads there.

6923. Since then scavenage has been carried on in that district?—At that time I examined every road in the township, and gave notice to all parties whose drainage ran upon the roads to abate it. Some parties did it immediately, but a great many declined; and when I again applied to them, I found that they did so in consequence of some order, they said from the Board of Health Commissioner not to interfere with the "midden-steads," as we call them, at that time. As surveyor, I should have taken the responsibility upon myself of requiring the whole to be removed; because I am satisfied that it could have been done, in that township at least, without injury to the health of the inhabitants. In those cases where a removal did take place, no bad effects followed; and in those other cases, where there was no removal at the time, the places remain as they were.

6924. Is there any other point in which you can compare the sanitary state of the town in the year 1849, or at any previous period, and its sanitary state in August 1853?—The year 1849 was very soon after the Irish irruption. We had here an irruption of Irish; and from that time to this there has been in those tenement houses, occupied by the Irish, an increase of filthiness.

6925. Do you think that the houses occupied by the Irish have been getting worse and worse since that time?—Yes. I find as an owner, and also as having the management of such houses, that it is exceedingly difficult, where Irish get in, to obtain any possible chance of cleanliness in the interior of the house. There is that wide difference between the character of the Irish and of the original inhabitants. The old inhabitants, such as keelmen and other parties, who have been stationary inhabitants of the place, were very cleanly with regard to their houses inside.

6926. (*Mr. Bateman.*) And indifferent to external appearances?—Indifferent to the midden stead, if it were a sufficient distance from their doors; and they were not in the habit of taking so many people to lodge in a room as has now become, I may almost say, the universal practice, among the Irish population. I believe that that accumulation of individuals in single rooms was one great cause of the transmission of disease to the extent that it went to last summer.

6927. (*Chairman.*) Have you any individual knowledge upon that point?—Yes. I have had tenants of my own of that sort, who have had no furniture or bedding or anything but some rubbish, with a dirty coverlet over it, laid in a corner on the floor. I have had great difficulty in getting quit of them also.

6928. Were any of those houses, which you speak of as your own and which you say were overcrowded, ever brought under the superintendence of the corporation and its officers, by virtue of the Common Lodging-houses Act?—No. I consider my own superintendence the best that could be given; because I made it a condition that they should have no lodgers, though this was evaded in some instances; and I know other property adjoining to mine and in the neighbourhood, particularly in Lime Street, where the rooms were occupied by crowds of that sort of people.

6929. Were those houses so overcrowded as in your judgment to call for the interference of any public body having authority to remedy that matter?—I think they were.

6930. Was any such interference or interposition ever exercised?—Since September I have never been able to learn much; because I was attacked at the time with diarrhœa and have never been well since.

6931. Previously to September was any such interference or interposition exercised?—I am not aware. In one case I know that there was. In the case of a person of the name of Mitchison, in Lime Street, the council through their committee or the town surveyor interfered to prevent him applying the property as he had applied it.

6932. Are you speaking of your own houses?—No, not my own. I should not have them so as to require the interference there.

6933. Do you know any new rows of houses which have been built in All Saints East, or in the township of Byker, within the last four or five years?—There have been some new rows built in All Saints East, behind Ridley Villas, and are building now; and in the neighbourhood of Shield Street some houses have been added, but not many I think.

6934. Do you know the method of construction which has been adopted in those houses?—I have been in them whilst building.

6935. Do you know what the arrangements there have been in respect of ordinary domestic conveniences, yards, privies, and ash-pits and so on?—They have been supplied with them generally; but in my opinion upon too small a scale for health; and I will explain that opinion so that you may test it. It is that every house should have at least as much open ground, in the way of back yard, as it stands upon.

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6936. Has each of those new houses generally a privy and ash-pit to itself?—Yes.

6937. Have you ever been in those houses since their construction, to know in what condition those privies and ash-pits were?—Not in that neighbourhood. I have merely seen them in riding or walking past; but I think they have been kept in tolerable order, as far as I could see from those which I have passed. Besides, I think I could have told by my nose.

6938. Your nose has not reported unfavourably upon the subject?—Not in those places. There have been other houses built in Byker near Byker Bar since 1849, part of them upon ground that I sold myself; they were bound to have a yard and the requisite conveniences for the houses, and they have so.

6939. Have they been adequately provided with those conveniences?—Yes, I think they have. They have kept the yards tolerably clean on the whole; but externally they are in the habit of throwing ashes and refuse upon the open ground.

6940. Where they have an ash-pit of their own do they do that?—Where they have ash-pits of their own.

6941. Before the ash-pit is full?—I do not know. I dare say they would as readily do it as not in many cases, whether it was full or empty; but probably it may have been in most cases where the ash-pit was full.

6942. Did you ever actually know of the case of a person who threw the ashes and refuse about when the ash-pit in their own yard was not full, and when they could as well have thrown them into the ash-pit?—Yes. I know other houses where they have some open ground that happens to be nearer to the back door than their ash-pit is, and they threw the refuse there, instead of taking it to their ash-pit, which was not full.

6943. I am speaking of where they have an ash-pit in their own yard?—Yes; I am speaking of an instance of houses where the tenants have thrown their ashes upon open ground rather than take them to their own ash-pit, although that ash-pit has not been full.

6944. Where was that ash-pit situated?—At a place behind the houses, up a few steps; probably about twenty or thirty feet.

6945. What was the class of population, Irish or English?—Mixed, some Irish and some English; and all, of course, occupiers of tenemented houses only. With regard to the throwing about of the ashes, I do not think there is a very great deal of difference; one class is as careless and indifferent to order as the other in that respect.

6946. (*Mr. Bateman.*) Do you mean the original inhabitants as well as the Irish immigrants?—Yes, they are quite as indifferent to order with regard to scattering their ashes as the Irish.

6947. Do you think that the inhabitants generally are so confirmed in bad habits of that kind, that anything which the corporation could do would not induce them, except by positive punishment, to do any better?—I think that the council or anybody else would have very great difficulty in changing the practice of the people, unless some different system of arranging the dwelling-houses and conveniences were adopted. I turned my attention, in consequence of the character of the people, to the means of doing that, and I conceive that tenement rooms might have accommodation without the necessity of going out of doors to deposit their ashes.

6948. (*Chairman.*) You are speaking now of the inhabitants of tenemented property only?—Altogether tenement property. Any parties who live in a house by themselves take care of their ashes in a proper manner.

6949. You do not believe that any occupier of a self-contained house, with an empty ash-pit in his yard, would throw his ashes and refuse about?—No, I do not think such a thing as that. In general, where the houses are so occupied, they are very cleanly. I am speaking entirely of tenemented houses; where there are more than one family living in a house.

6950. Is there any other point on which you would like to speak?—I may mention incidentally that I have become acquainted with certain points which I think you ought to have before you, although I cannot myself speak positively to them; it is with regard to a good deal of property in Sandgate, belonging to the Tyne brewery.

6951. What is the nature of the circumstances to which you allude?—They have separate conveniences there for the men and the women, and the whole kept in very good order; and during last year, whilst cholera raged here, I believe there was not a single instance, except one, of any cholera disease amongst the inhabitants of all those houses. The number of their own workmen and families was eighty-five, among whom there were no cases of cholera; and the number of their other tenants with their families, was 108, and there was one fatal case.

6952. Do you wish to offer that as a confirmation of the ordinary sanitary view, that cleanliness produces comparative exemption from disease?—You have had evidence that Sandgate ought to be cannonaded, or something of the sort; and I give you that instance, as showing that even in Sandgate parties could live and be very healthy, when care was taken with regard to proper conveniences, and cleanliness in their own habitations.

6953. (*Mr. Bateman.*) Irrespectively of anything which might occur outside their habitations?—Their habitations abut upon others that very likely had no care taken of them, and the chares are very narrow that lead to them.

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6954. I asked you if you believed that they could be healthy within their own houses, irrespectively of any circumstances outside their houses?—Not irrespectively, of course. I think that cleanliness outside is almost as necessary as within. I think internal cleanliness the main point, and external cleanliness also a very material point. I merely instance this case to show the result even in that locality.

6955. (*Chairman.*) That the epidemic made a discrimination in favour of the clean people?—One would say so, when there was only one case among so many persons. I am not aware of any other facts which I can bring before you.

6956. Do you wish to say anything about the water?—I do not drink the water myself. I have water at my own house, and have not any supply of water from the Whittle Dean water company. I know, however, what the general character of the water was, because I got a large supply to the public baths. I am chairman of the committee for managing those baths, and made arrangements with the water company last year to supply us.

6957. When you say the public baths do you mean the public subscription baths?—Yes, in Northumberland Street. At one time there was a considerable deposit of mud from the water, but I saw nothing at all of decaying matter.

6958. You saw no signs of any putrid matter in it?—No signs of putridity; no scum of that sort.

6959. We have had evidence from your bath keeper, Mr. Forster Dodds, to the same effect, namely, that the water was thick and muddy, and left a sediment, but that he never noticed any offensive smell?—I never noticed a bad smell from it.

6960. But that it had a bad taste?—It had an earthy taste to me. I do not like water from the surface, but only spring water.

6961. Is there any other point upon which you wish to say anything?—I may mention generally that for many years I have been very anxious to see the sanitary state of the town improved, and I have been at loggerheads with the council upon that point upon many occasions. I do not know that the opinion of the town even would have been in my favour.

6962. Was it upon a matter of that kind that you lost your election in 1849?—No; I think it was upon a matter of brandy and water more than anything else; I was told that if I would spend money I should be elected, but I had no notion of that.

6963. (*Mr. Deputy Town Clerk.*) Perhaps you gave yourself too little trouble?—I thought that the service which I did was ample repayment for the honour of the election.

6964. (*Chairman.*) You say that for some years you have paid attention to the sanitary state of the town; in what respects do you think the town has been improved during the seven years since the corporation obtained their powerful Local Act of 1846?—I think they pay a great deal more attention to the cleansing of the streets now.

6965. There is better scavenage now?—Yes.

6966. More flagging in Sandgate?—There has been flagging put down in Sandgate since that time.

6967. There are more sewers also?—They have not done a great deal in sewers, and upon what they have done I differ in opinion with them.

6968. Do you know any other point except those three, namely, of improved scavenage, extended sewerage, and extended flagging, in which the sanitary state of the town has been improving in the last seven years?—I think that that includes almost everything.

6969. There have been a great many cases recently of bad house construction?—With regard to house construction they have power to interfere; but there has not been any general supervision of buildings.

6970. Are you aware of their having exercised their power under the Act of 1846, to compel owners of houses to put in ash-pits and privies where ash-pits and privies were deficient?—Not to any great extent; it has been done, I think.

6971. Do you know of their having put in force their powers for cleansing filthy and unwholesome dwellings?—It has been done, but not to a great extent.

6972. There were powers of lime-washing and purifying houses which required it. Are you aware of any instances in which that has been done, excepting in times of epidemic?—I do not know that it was done perhaps more than once a year.

6973. Do you know of any lime-washing and purifying ever having been done by the corporation as often as once in each year?—I only know it generally by seeing it. I do not know it as a fact.

6974. I speak now of the years between 1849 and 1853. Do you think that in the years 1850, 1851, or 1852 there ever has been any specific instance whatsoever of lime-washing and purifying?—I should think not in 1852. I do not recollect in 1852.

6975. Or in 1851, or in 1850?—I cannot speak for certain upon it; but still it does not appear to me that there can have been an interval of three years between the whitewashings.

6976. You are not intimately acquainted with the point?—No. In 1846 I was one of a party who opposed the then proposed Bill, because we considered that it was not efficient upon many of those points. We thought that the council should have more power.

6977. Did you oppose the Bill in 1846 upon the ground that the council were not taking adequate powers?—In part. That was one of the grounds.

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6978. And afterwards you complained before Mr. Rawlinson in 1849, that they had not exercised even the powers which they had taken?—Yes. And last year I was one of a party that opposed the Bill because it was not only tyrannical but inefficient, as I thought.

6979. In what respect do you consider the Act of 1853 tyrannical?—Not the Act, but the Bill. We got it altered rather.

6980. The Act, so to say, met your approbation?—One point that we made was to have the Act rendered compulsory upon the council. As it stood in the Bill the words "if they thought fit;" were inserted, I think, and we required those words to be struck out.

6981. With respect to what power was that?—With respect to the powers under the incorporated Acts, as to nuisances and such like, whatever those Acts apply to.

6982. That it should be not discretionary but compulsory on the corporation to exercise the power given them by the clauses of those Acts which were incorporated?—Yes. And I think further that all councils (I am speaking now upon a general point,) should have some supervision over them to compel those powers to be exercised, rather than that the onus of such supervision should be thrown upon the shoulders of individuals.

6983. Is there any other point?—I have heard it said that some parties would prefer that the Board of Health had the management of those things in the town. In my opinion it would be highly injurious.

6984. You are not an advocate for centralization, as it is termed —No. I think it is very proper to have a central authority to supervise and control, but not to act in the details.

6985. You think it sufficient for the Board of Health to exercise surveillance, and to leave the administration and executive details to local bodies?—Yes; that in case of the town council or any other local body neglecting their powers, some central board should have the power of compelling them to do what they ought to do, without throwing it upon individuals.

6986. (*Mr. Bateman.*) You think that, if they do their work properly, they do it better as a local body than a central body could?—Yes, I have no doubt of it; and not only better but more satisfactorily to the people of each place; and I think it is also a check upon expenditure. I may also say with regard to the different Local Acts, which you have mentioned, the last Act and the others, that I think they are amply sufficient to obtain in the town all that is necessary for cleanliness and health, if they are properly enforced and acted on.

6987. (*Mr. Deputy Town Clerk.*) You stated that the township of Byker applied to have their highways taken under the management of the corporation?—Yes.

6988. Do you recollect whether that was in writing?—Yes, in writing. I think it was in 1839. I have somewhere or other a copy of the memorial sent. I have minutes that show the fact of the meeting having been held, at which resolutions were adopted to apply to the council upon that point.

Mr. GEORGE LOCKEY, further examined.

Mr. G. Lockey.

6989. (*Chairman.*) You remember that you furnished to Dr. Gavin a paper containing the measurements of the lengths and widths of the entries in Sandgate, to the accuracy of which you were previously sworn?—I did.

6990. What is the length of the "link" measure, in which the lengths of those entries are computed?—A link is the 100th part of a chain; the chain being 66 feet or 22 yards long.

6991. (*Mr. Bateman.*) How did you measure them, by a tape?—No, from a plan; and Mr. Oliver, the architect, who made the plan, assisted me in doing so.

6992. Were you sure that the plan contained all the alleys which were in existence?—I took the plan as far as it went to be correct, as representing all the alleys that were in existence at the time that I made these measurements. I went down personally and examined the whole of the alleys, but I did not measure them all; I measured certain of them.

6993. From what map did you measure them?—From Mr. Oliver's map of the town; the large one, which he was altering for the use of the corporation.

6994. Is this the map (*handing a map to the witness*)?—Yes; but he was making tracings of alterations that had been made in Sandgate for the corporation, and referred to those tracings which were taken from measurements which he himself made.

6995. (*Chairman.*) Have you any point upon which you wish to offer an opinion?—Nothing but general evidence. My own opinion is that the sewerage and drainage, although it has been much improved in the last few years, is still very defective; and that what has been done has not been done in a manner calculated very much to improve either the drainage or the sewerage. One main sewer has been formed up Pilgrim Street; and there are parties that have formed side drains from their property at the side of the street down into Erick Burn, in preference to putting them into the main sewer; the reason assigned being that the main sewer itself is not low enough to enable them to make use of it for the drainage of their property.

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6996. (*Mr. Town Surveyor.*) Do you recollect any of the parties to whom you allude?—Yes; Forsyth's people.

6997. Probably it is more convenient to them to carry their drains to Erick Burn than to Pilgrim Street?—Yes, more convenient. The property is situated along the line of the street, and yet they are obliged to drain it the other way.

6998. Have you any idea of the depth of the sewer in Pilgrim Street to which you are alluding?—I think it is fourteen feet or thereabouts.

6999. Do not you think that that is ample to drain anything in the street?—But the property forming one side of the street extends a considerable distance down towards Erick Burn.

7000. (*Chairman.*) Is it not a fact that Pilgrim Street itself runs exactly along the crest of a ridge or hill?—It does.

7001. Then of course the property would naturally drain to either side; but in addition you have a main sewer through the street itself, in case there should be any people who can make use of it?—(*Mr. Town Surveyor.*) There is a large sewer also at the bottom. It was a very proper thing to have a sewer there.

7002. (*Mr. Bateman to Mr. Town Surveyor.*) That is for the accommodation of the houses immediately upon the street?—Yes.

7003. Are the houses immediately adjoining Pilgrim Street the most important part of the property between the street and the properties on each side?—Yes; they are mostly shops and manufactories.

7004. (*Chairman.*) What is the depth of the Pilgrim Street sewer for the greater part of its length?—It varies, I believe, from about 12 feet to 16 feet.

7005. There is no part shallower than 12 feet?—I do not think there is any part of it above the Arcade shallower than 11 feet; below the Arcade it is shallower.

7006. I think you said that you have no map of the sewers except this map of the borough with the sewers laid down upon it?—We have them upon sheets on a larger scale; but we have not got them put on a larger map yet; we have all the depths and sizes of the sewers.

7007. In 1848 the Sanitary Committee or the Sanitary Association memorialized the corporation on the subject of a map or plan of the sewerage and drainage; and there has been a good deal of correspondence about it from time to time ever since. No such map of the sewerage and drainage of the borough is now in existence?—We have not a special one upon a large scale.

The witness here went into several statements, tending to show the defective nature of the sewerage in different parts of the town; sewers too shallow for houses to be drainable into them, cellars in consequence liable to be flooded by leakage from the sewers, and so on; but as several of his statements were impugned subsequently by the Town Surveyor, and as it would have taken more time properly to investigate such contested details than their importance seemed to deserve, it has not been thought necessary to retain any of the statements, on either side, upon the minutes.

7008. (*Chairman to Mr. Lockey.*) Have you been an inhabitant of this town long?—Sixteen or seventeeen years.

7009. Have you paid attention to sanitary matters for any number of years?—I have had very ample opportunities of paying attention to them and have done so for some years past.

7010. Had you, say at the time of Mr. Rawlinson's official visit here in 1849, occasion to form any opinion as to the then sanitary state of the town?—I had generally.

7011. Had you such opportunities as would enable you now to recollect pretty confidently what the then sanitary state of the town was?—I should say that there has been an improvement since that period; but not to the extent that I think those improvements were capable of being carried.

7012. To what points of improvement would you specifically refer?—First, in respect of the drainage, that there has been no systematic plan of draining the town carried out; that it has been patchwork from beginning to end; and that the patchwork system has gone on since that period. Some improvements have been made, no doubt, in the course of that interval; but what it is not improved in is in the want of a general plan or system for sewerage.

7013. Are there any other points besides sewerage, in which the town has been improved?— With regard to nuisances generally, during the time that Mr. Rawlinson was here and for some short time afterwards, considerable improvement took place.

7014. With respect to removing accumulations, and so on?—Yes; but it very soon relapsed into its former bad condition, and continued so up to the period of the cholera.

7015. You think that, with respect to accumulations of filth, the town had retrograded between 1849 and August 1853?—Yes, and has recovered itself since. It is now in a very good condition, comparatively.

7016. Improvements also in flagging and paving have been made, especially in certain parts of Sandgate, and also in many other parts of the town?—No doubt of it.

7017. Can you mention any other point, beyond sewering and paving, in which the town was in any material degree improved between 1849 and August 1853?—I think no other improvement whatever, to any extent, occurred up to the commencement of the cholera.

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7018. Would you like to say anything upon the water or the gas, or any other point?—Before I leave the subject of drainage, I would also mention that there is one street, where I lived myself some years, and in which the town surveyor lives now, I believe, called St. Thomas's Street, the drain of which is larger than, and cannot be thoroughly drained by, the drain into which it falls. In bad weather the smaller drain gets choked, and the water comes up the street and sinks into the cellars and other places in the neighbourhood.

7019. (*To Mr. Town Surveyor.*) You mentioned on a previous occasion several cases of larger sewers running into smaller ones; is this one of them?—I never mentioned, though, that the smaller sewers were insufficient to carry off the water.

7020. There are, however, many instances in this town in which larger sewers run into smaller ones?—Yes.

7021. (*Mr. Bateman.*) What you state is that, although it does occur that larger sewers empty into smaller ones, the smaller ones are still large enough?—Certainly.

7022. And therefore the others are a great deal too big?—I have no doubt of it. There is one in Dean Street six feet by four, which is never one third full.

(*Mr. Lockey.*) If the small sewer at the foot of St. Thomas's Street, into which the larger sewer in St. Thomas's Street is drained, dams the water up, so that it sets back and rises up in the bigger sewer, the little one must be incapable of taking it away.

(*Mr. Town Surveyor.*) I am not aware of any instance of that kind.

7023. (*Chairman to Mr. Town Surveyor.*) Do you live in St. Thomas's Street?—Yes.

7024. In going up from Percy Street and Newgate Street in the course of the summer, have you ever or frequently noticed offensive effluvia from the gully-grates there?—There is no question of it. They are near the surface, and very shallow; and they are not trapped in that neighbourhood. There are occasionally offensive smells, though not generally so. I have occasionally felt it. I do not think we can infer that the sewers are inadequate or inefficient for the purpose for which they are intended from their giving out a bad smell. We cannot have sewers that do not stink when so much stinking stuff goes into them.

7025. (*Mr. Bateman.*) What you mean to say is, that if the water going down the sewer is of a very offensive character, and the sewer is not covered over or not properly trapped, it must stink?—Decidedly; every sewer will stink.

7026. Particularly with reference to the sewer from the tan-pits at Darn Crook, passing down Newgate Street and emptying in an open channel behind the cottages there. Did you ever pass that at any season of the year without perceiving any offensive smell from it?—Decidedly not. I have smelt it very strongly; and every sewer must smell. You cannot always be throwing water into every sewer.

7027. (*Mr. Lockey.*) There is one particular sewer upon the Sand Hill in the vicinity of a pork-shop, where they make sausages and that cheap sort of meat. Have you ever felt any offensive smell from that sewer in passing of a morning?—I have, from the Sand Hill sewer.

7028. Are you aware that great complaints are made by people in the neighbourhood as to the offensive effluvia arising from it?—No doubt of it, a few months ago particularly.

7029. Continually; every day, almost?—No doubt it would be so.

7030. And that there are several places of this description in the town?—No question of it. It must be so, so long as they are untrapped.

7031. (*Chairman to Mr. Town Surveyor.*) We shall be glad if you will put in any amount of evidence, which you may have, as to the efficiency of your sewerage. I confess that the evidence which we have obtained, both from our own noses and in this room, is certainly very unfavourable to the notion that the sewerage, even as it now exists, is what we should call efficient?—We have flushed to a very great extent our sewers, and examined them very minutely for some time back; one or two persons have taken a very active part in that work who are ready to give their evidence. A great many persons have given evidence here who have never been in them at all. They smell them and merely give an opinion from that.

(*Mr. Lockey.*) I happened to be several times in the one which was formed in Pilgrim Street, and in two or three others.

(*Mr. Town Surveyor.*) We were making some very extensive repairs at Westgate, and a great deal of the ashes and the rough macadamized material got into that sewer, and that may have stopped the sewer in Clayton Street. We only in November commenced that work, and I believe it was entirely settled up in the last week of November.

(*Mr. Bryson.*) That could not have been there during the cholera.

7032. (*Chairman to Mr. Bryson.*) I understand you to imply that the silt which we found at the corner of Clayton Street and of Fenkle Street may not, in your judgment, have existed there at the time of the cholera?—Quite so; on the contrary we have evidence, from the operations which were going on in the street improvements up Westgate Hill, that a great deal of the road metal went down here into the Westgate Street sewer, and silted this back in the Clayton Street sewer (*showing the same.*)

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7033. What evidence have you to show that the accumulation in the Westgate Street sewer may not itself have been dependant on the previous accumulation and obstruction of the Clayton Street sewer?—It could not be so; the metal that was lying at the bottom, such as that shown here, was exactly as it is shown here, obstructing this; there was no way for its escape.

7034. Still supposing the Clayton Street sewer to have been already silted up, as you recently found it, that would have accounted for the further silting up of the Westgate Street sewer?—It could not be so, because this in the Westgate Street sewer is a heavy sediment of road metal. This was completely blocked up on account of its coming at right angles.

7035. At all events then this is the fact, that the outlet for the Westgate Street sewage turns at less than a right angle at the corner of Westgate Street and Clayton Street; and that the natural tendency is for the Westgate Street sewage to run up, instead of down, the Clayton Street sewer, and so to cause a damming back and a disposition to stagnate and deposit in the upper part of the latter?—Yes, at the junction; but this is only a part of the design which is to be carried out.

7036. (*Mr. Bateman.*) What ground, except inference, have you for believing that that accumulation did not exist in the Clayton Street sewer previously to November last?—I have no ground strong enough to say that the Clayton Street sewer was clear until the Westgate Street was blocked up; but I have the strongest possible evidence that it has mainly silted up since last November.

7037. What is the inclination of the Clayton Street sewer?—It is one in 72.

7038. And what is the inclination of the Westgate Street sewer?—I think it is one in 48.

7039. Which sewer brings down the greater quantity of sewerage water?—The Westgate Street sewer.

7040. Which will bring down the greatest quantity of road material?—The Westgate Street sewer. The Clayton Street sewer terminates a little way above the Clayton Arms.

7041. Will not it then necessarily result from these facts, that where you have a more rapid descent and a stronger current of sewage falling into another sewer, where the declivity is less and consequently the current slower, and having to turn at less than a right angle in order to get down that other sewer, there must be a tendency to deposit a part of that which was carried along by the stronger current?—Quite so; but this is only a part of the proposed arrangement, it is not carried out yet.

7042. (*Chairman.*) Could you be surprised then to find deposit in Clayton Street?—Not when you find that this shingle is here.

7043. (*Mr. Bateman.*) Quite independently of any shingle or other accumulation which may be clearly traceable to your operations in November, does it not follow in the ordinary course of things that a current of water, containing sewage or other matter in suspension, which first flows with a greater velocity down a steeper sewer, and which is afterwards obliged to turn at less than right angles along a sewer of less declivity and consequently less velocity, must deposit?—Yes, that is the sole cause of it.

(*Mr. Town Surveyor.*) It is rather apt to do so, and we will attend to it.

7044. (*Chairman.*) Looking at the angle at which the Westgate Street sewer enters the Clayton Street sewer, would not the tendency be for the current of the Westgate Street sewage rather to run up the Clayton Street sewer than down it; and at all events would not the tendency necessarily be to dam up the water in that direction?—Most decidedly.

(*Mr. Town Surveyor.*) We have a circle round here (*showing the same*); this is an angle but the other is not, that is a circle.

7045. Still it is obvious that if those sewers exist, as represented on your plan, there will and must be a tendency to silt up in the direction of the Clayton Street sewer?—(*Mr. Bryson.*) Most undoubtedly.

7046. Until your further operations are carried out it will be in vain to expect anything but a tendency to silting up there?—Quite so.

7047. The deposit in Clayton Street may have been aggravated beyond what it was in August 1853, by your operations in November?—Quite so.

7048. Still I suppose a foot deep of deposit in a sewer would be quite sufficient to produce a nauseous stench without getting twenty inches depth?—Decidedly so.

7049. (*Chairman to Mr. Lockey.*) Is there any other point on which you wish to say anything?—I do not wish to occupy the time of the court unnecessarily, but with regard to the mode of putting down nuisances, I think a much more effective one ought to be adopted than is at present. It wants a person to devote his time and attention almost solely to it. You have inspectors of nuisances in distinct and separate parts of the town, having little communication with one another, and with no general knowledge among the inhabitants as to how to proceed for the removal of nuisances; which causes such nuisances to accumulate often to a large and very injurious extent. In the neighbourhood of good streets, such as Blackett Street, there is a narrow lane behind it often in a very offensive state.

7050. What is the name of the lane?—High Friar Lane; and if you go round Eldon Square, the houses of which certainly do great credit to the builder, Mr. Grainger, you will find nuclei of filth there as bad as in any place in Sandgate. I think that such surveillance ought to be exercised also over the water, which is another branch of the subject upon which I wish to make a few observations.

7051. You have no complaint to make of the Whittle Dean water ordinarily, have you, except that it may be a little hard?—The Whittle Dean water generally is not in bad condition, and when it is good it is very good water; but very frequently it happens to be in a bad state.

7052. When you say "very frequently," how often do you mean?—It is seldom good a couple of months together.

7053. Do you mean to say that four or five times in the year you have reason to complain of the water being bad?—Quite so.

7054. (*Mr. Bateman.*) In what way is it bad so frequently as that?—Discolouration.

7055. Will it deposit upon standing, or is it mere discolouration?—It will deposit upon standing, and you will find it do so in the cisterns of the private houses, when the water is brought in. Of course, it is of no use making observations as to the impurity of the Tyne water.

7056. (*Chairman.*) Do you know of your own personal knowledge that, supposing you cleaned out a properly covered cistern this day, within three, four, five, or six months you would be sure of finding a considerable deposit of mud there?—No doubt of it. At certain periods, if I left the water standing in a jug overnight, there would be a deposit in the morning.

7057. (*Mr. Bateman.*) Although drawn from a tap, and not from a cistern?—Yes; I have frequently seen that happen; but when the water is good, you will not find that deposit.

7058. *Chairman.*) Do you mean to say that every two months, or four or five times a year, there would occur a space of twenty-four or thirty-six or forty-eight hours in which water, drawn direct from the pipe, would leave an appreciable sediment in the jug?—No doubt of it.

7059. (*Mr. Bateman.*) Have you noticed it at more places than one, or at one particular spot?—At various places I have noticed it.

7060. Do you know the circumstances of the connection between the tap from which the water is drawn and the main pipe of the company, the sort of pipe it is carried through?—No, I do not.

7061. (*Chairman.*) Are you supplied by the Whittle Dean company in your own house?—Yes.

7062. Have you a cistern?—I am not the occupier of a house now; at present I am in lodgings; but when I was the occupier of a house in St. Thomas's Street and elsewhere, I had water without a cistern.

7063. You drew it direct from the pipe in your own house?—Yes.

7064. And it was there that you noticed this sediment?—I noticed it very frequently there.

7065. In what year was this?—That would be five or six years ago.

7066. That would be just at the time of their establishment; they only commenced distributing water in October 1848?—It was soon after their establishment, and more recently within the neighbourhood of the Cattle Market.

7067. Have you frequently noticed, within the last three or four years, water drawn direct from a tap of the Whittle Dean company have an appreciable sediment?—I should say I have.

7068. Excepting, I mean, during the summers of 1850 and 1853, when they avowedly drew from the Tyne, do you remember having seen what you mention?—Yes; no question about it; and if there was an inquiry made directly to the inhabitants, they would tell you so.

7069. (*Mr. Bateman.*) At how recent a period have you noticed this?—In 1853—I do not mean during the prevalence of the cholera, but previously to that, in 1852 and 1853, the water flowing from the Whittle Dean was and at the present time is occasionally bad. I believe at this very day and moment it is so. From whatever cause it arises, whether from the turbulence of the water in the reservoirs created by high winds, or the action of any other elements in those quarters, the water does periodically change from a pure state to a very bad one, and continues so for some days.

7070. (*Chairman.*) In respect of sediment?—In respect of sediment and colour.

7071. Is there any other point?—No, I think, nothing particular. There is one general observation which I would make with regard to the attention paid to sick and necessitous persons, especially during the prevalence of the cholera. I had very extensive opportunities of observing the disease in this town, and I found that in a great many cases parties died or greatly suffered from the want, not of medicine, which was supplied very plenteously, but of the common necessaries of life, and of the means of applying the medicines and food, when orders were given that these should be furnished by the guardians or parochial officers. I think that in any arrangements which may be made for the purpose of carrying out good medical appliances in times of cholera, there ought to be contemporaneously an efficient staff for the purpose of distributing to the necessitous the requirements which are specially necessary under such circumstances.

Mr. G. Lockey.

7th March 1854.

7072. You do not make any complaint against the board of guardians?—I do not.

7073. You merely state that there were instances which came to your knowledge in which things were not done which might have been done; but you would not go further than that?—I merely state the fact, and would suggest that arrangements, to prevent the recurrence of such a matter on the outbreak of an epidemic like cholera, should be made contemporaneously with the medical staff.

G. Robinson, Esq., M.D.

GEORGE ROBINSON, Esq., M.D., further examined.

(*Dr. Robinson.*) I have been requested by two or three persons to mention one or two additional circumstances to the Commissioners. In the first place, at the late assizes, attention was directed to a large number of piggeries now existing near the Red Barns, at the top of Stepney Bank, which is in violation of one of the byelaws for regulating the keeping of swine in this borough.

7074. (*Chairman.*) To what extent did these piggeries exist there?—To the extent of about 100 in number.

7075. (*To Mr. Deputy Town Clerk.*) Surely you have long had the power to put down piggeries?—We have power now.

7076. Did not the Act of 1846 also apply to the whole borough in respect of such matters as piggeries?—Yes, I think to everything except as to roads and streets.

7077. (*To Dr. Robinson.*) That was given in evidence upon oath, was it?—Yes, and I have since been to the spot, and seen them myself. There was a special byelaw passed on that subject about four or five years since.

7078. Was there any great mortality about Stepney Bank?—Yes; in Stepney Square, and in some of the streets at the foot of Stepney Bank, there was a considerable mortality. Dublin Terrace is at the foot, I think, near Ouseburn.

7079. (*Mr. Bateman.*) Dublin Terrace is at some distance from the foot of Stepney Bank?—It is in Lime Street, and this Stepney Bank is just on the west side of Lime Street.

7080. (*Chairman.*) What is the next point?—Two unmarried ladies have some tenemented property in High Friar Street, and they requested me to mention to the Commissioners that a portion of their houses is rendered uninhabitable by the oozing into them of the contents of the sewer.

7081. Where is High Friar Street?—It runs from Newgate Street across to Grey Street, behind Blackett Street. The sewer runs in front of their houses, under the footpath.

7082. We had evidence of that already; the flagging of the street is the roof of the sewer?—Yes.

7083. (*To Mr. Bryson.*) That is the fact, is it not?—In a portion of it it is.

(*Dr. Robinson.*) The builder employed by these ladies stated that he had removed three cartloads of mud from the sewer; it had to be opened.

7084. What is the next point?—I was requested to hand in this document from the Committee of Memorialists. They thought that, as the labours of the Commission were, perhaps, drawing to a close, they might be permitted to submit this memorial to them. (*Producing the same.*)

7085. (*Chairman.*) This is a further memorial from the committee of the original memorialists, praying that there may be a further inquiry, cognate to the present one, but going into points which are beyond the jurisdiction of the present one. Whether we can take this as evidence before us will be matter for consideration; but we will receive it and will do what seems proper in the matter. (*To Mr. Deputy Town Clerk.*) I understand from you that you have no evidence to offer?—(*Mr. Arnott.*) None, except with regard to the smoke nuisance.

7086. Will you be good enough to mention to us any cases in which any advantage whatsoever has been taken of the smoke nuisance abatement powers of the Local Act of 1846?—I will mention the names of the parties upon whom notices were served. In the year 1848, (I do not exactly recollect the time,) notices were served upon all the masters and owners of steam-boats navigating the Tyne; on Mr. Smith, of St. Lawrence, an iron manufacturer; Mr. Welsh, of Denton Chare; Mr. Hodgin, of Denton Chare; Messrs. Bernard Brothers, of Gallowgate; Lock, Blackett and Company; and Mr. Anderson, of Gallowgate.

7087. Were all those in 1848?—They were all in 1848.

7088. Which of those is the Grey Street brewery, to which Sir John Fife alluded?—The Grey Street brewery is not in this list.

7089. In how many of those cases was the smoke nuisance to any degree abated in consequence of those notices?—I can only speak of one from my own personal knowledge in Denton Chare. I saw that, and it was remedied.

7090. Has it ever returned since to its original intensity of nuisance?—We have had no complaints.

Mr. HENRY SIBBET, examined.

7091. (*Chairman.*) You are assistant overseer for one of the parishes of this town?—I am; for St. John's.

7092. On Tuesday last, you accompanied the Commissioners through some parts of your district?—I did.

7093. Amongst others, we went to Hanover Terrace?—Yes.

7094. We visited there three houses standing rather by themselves, and consisting each of a single room?—Yes.

7095. Did any deaths occur there from cholera in the recent epidemic?—There were five in that terrace.

7096. In those three houses?—There were three in one end house, and two in the other end house.

7097. Was there any death in the middle one of the three houses?—No, not one.

7098. Will you be good enough to state what you and we noticed with reference to the end houses in which the deaths occurred?—The common sewer from the head of the stairs runs down close to the one gable end where the three deaths occurred, and the soil, which rises steeply about there and piles up against the walls of the gable end, was obviously damp from that cause; and at the other gable end of the cottages, where the two deaths occurred, there is a sink, and the sewer goes down within three feet of that gable end also in the same way. Beside which, the rain-water from the roofs of all the three houses is made to run off to one or other gable end, where it falls on to the ground against the wall, and in the one case on to a heap of dirt and filth accumulated in the corner, so that there was a great sumpage there.

7099. That was the state of the soil at the time we saw it, and when no great quantity of rain had fallen recently?—Yes.

7100. All the three houses or rooms are without any through ventilation?—There is no through ventilation in any.

7101. But all the houses being equally ill-circumstanced in respect of that point, the two end houses, in which alone the cholera mortality occurred, exhibited obvious sanitary defects as compared with the middle one?—Decidedly.

7102. That is to say, the end walls of each of those houses in which the mortality occurred are liable to be saturated or wetted with water which will be very far from pure, while in the middle house, neither of whose sides are liable to anything of that kind, no mortality occurred?—No mortality occurred.

7103. From there we proceeded to Handysides Entry, which is immediately at the back or south of Denton Chare, which is at the back or south of Collingwood Street?—Yes.

7104. What was the state of Handysides Entry when we saw it?—A very filthy state.

7105. From there we went into another entry immediately below?—Clogger's Entry.

7106. And that was still more beastly than the other?—Decidedly so; but it has been improved lately.

7107. (*Mr. Winter.*) Was it filthy that day you were there?—Yes.

7108. Only to a certain point, where the sewers run down; there was no excrement on the flags?—Not at the east end of the entry.

7109. That has reference only to one part where the sewerage is, and it is stopped up?—Yes.

7110. Did the Commissioners find any excrements upon the flags in any other part of the lane?—(*Chairman.*) I do not think we did at the eastern or entrance part. We found it damp and wet and in a stinking condition, the whole length of it, although it was only at the further end that the nuisance was so very great. I confess I was as nearly as possible made sick upon the spot.

(*Mr. Winter.*) I will simply say that the state of things there has not been made by myself, and in defence of my position I may say it has been the gradual work perhaps of between twenty and thirty years.

7111. (*Chairman.*) You stated before that you had done what you could to improve the condition of the people there; I am now only putting on record the actual facts of the case as we found them after your efforts at improvement. (*To Mr. Sibbet.*) From there we went into another entry again?—We went into the Mill Entry, and we found it considerably worse than the other entries that we were in before. The Mill Entry was decidedly the worst entry that we were in.

7112. (*Mr. Bateman.*) I have been into most of the worst entries in Newcastle, and Mill Entry was decidedly the worst I have been in; we never got to the end?—No, you were perfectly satisfied within ten or twenty yards of it.

7113. (*Chairman.*) From there we crossed over to Pudding Chare, and having walked up the whole length of that, we turned out on our return down into Rosemary Lane?—Yes.

7114. There you took us to a house belonging to yourself, in which eight deaths from cholera had occurred during the late epidemic?—Yes.

Mr. H. Sibbet.

10th March 1854.

7115. And you made a statement to us, with reference to the measures which you had taken to clean up the house, and to put it in order some months before the epidemic?—Just so.

7116. Will you be good enough to repeat that statement now?—In the year 1852, scarlet fever broke out in this house, which was entirely inhabited by the lowest of the Irish community that we could boast of in this town. Three deaths took place in the house from scarlet fever. I immediately set about to give the whole of the tenantry notice to quit, determined if possible to make the house what it ought to be; and it took me four weeks before I could get them all out; and then I locked up the house, fumigated it with charcoal, brimstone, and quick-lime, and employed the necessary tradesmen, painters, joiners, and bricklayers to put the house into a proper tenantable state of repair, which cost me about forty pounds.

7117. In respect of a house containing sixteen rooms on four floors, and a seventeenth behind it?—Fifteen in the house, and two rooms in a cottage behind; and at the time the scarlet fever broke out, there were twelve families occupying this house, consisting of seventy-four individuals. Immediately after I got the work done, I closed up the house entirely. I got it painted, and had everything done to it to make it a comfortable dwelling for the working classes; and I kept it closed for three months, determined to have it as pure as I possibly could. I then, towards the May term, let it into tenements again, and the first floor, consisting of four rooms, was let to one tenant, whose family consisted of five persons; the second floor was let in two tenements of two rooms each, and the occupants consisted of eight persons, four rooms; the third floor was let into two tenements of two rooms each, the two families being eight persons; the fourth flight into two tenements, and six persons occupied the three rooms. The two rooms in the yard behind were let to one family consisting of four individuals. There were altogether thirty-one human beings inhabiting the seventeen rooms of that house.

7118. Was that at the time of the epidemic?—Just before the epidemic; and it was a clean comfortable house, for I took particular care to see that it was kept clean.

7119. Of those thirty-one people inhabiting seventeen rooms of a newly painted and cleansed house, eight died during the time of the epidemic?—Eight out of the thirty-one died.

7120. What followed; what investigations were made, and what facts came to your knowledge?—Immediately after the epidemic was over, the medical gentlemen waited upon me to ascertain if I would give my consent to open the cellar, to see if they could account for so much mortality; for the cellar was completely built up, never having been made use of for a long time. I gave my consent, and sent for the bricklayer to break down the doorway and the front window, and we found the cellar with stagnant water in it to the depth of from twelve to fifteen inches.

7121. Was there any offensive smell from that water?—Yes.

7122. It was not simply pure water?—No, it was offensive stagnant water. I immediately set to work and employed two Irish labourers, and it took them three or four days to carry out the water. We had to bail it out in pails, and carry it out, and throw it into the branch drain in Rosemary Lane. After that I waited upon Mr. Wallace, the town surveyor, to ascertain if it was possible that this house could be drained. Mr. Wallace was very candid in the matter. He said, "The branch drain in Rosemary "Lane is above the level of your cellar." "Well, but," I said, "I will be at the expense of "carrying a drain from the cellar to the main sewer in the Pudding Chare." Mr. Wallace's reply was that he was in the same predicament with the Pudding Chare sewer as with the branch sewer, namely, that there was not a sufficient level to take out the water from the cellar. I asked him what I was to do; and he said perhaps the Town Improvement committee might take it into their heads some day during the next two or three years to relay the Pudding Chare sewer so that it might accommodate the inhabitants of that locality. Since then, finding that there was no probability of any improvement there, I have got the cellar floor asphalted, which has cost me between 5*l.* and 6*l.*, to see if I could possibly abate the nuisance; but, unfortunately, I am in the same predicament as before. It does not come through the asphalte, but comes oozing out through the walls now.

7123. On which side?—The back side. I cannot trace any leakage from the front street.

7124. There is no leakage that you know of from the sewer in Rosemary Lane?—No.

7125. Then you do not exactly know where the leakage comes from?—It evidently comes from the back side, and the side next the public house, and there is a small sewer from the back yard going through underneath the public house into the Pudding Chare. I have had that cleaned out once since the epidemic, and got it thoroughly cleansed and relaid to avoid any water coming out of that place, but still it gets out somewhere.

7126. From thence we went down Rosemary Lane?—Yes.

7127. Did you collect the statistics which I asked you for?—Yes.

7128. What is the number of houses in Rosemary Lane?—There are sixteen houses altogether.

7129. How many inhabitants?—192 individuals occupied those sixteen houses, and sixteen died out of the 192; that is one in twelve. That is in the whole of Rosemary Lane.

7130. (*Mr. Bateman.*) Including your own house?—Yes.

The witness here delivered in the following paper:

Population and Cholera Mortality Return for Rosemary Lane, in the Parish of St. John, 1853.

	Tenements.	Rooms.	Population	Deaths.
No. 1 House empty -	-	-	-	-
„ 2 House - -	8	16	20	2
„ 3 Cottage - -	2	2	5	1
„ 4 „ - -	1	2	6	1
„ 5 „ - -	2	3	6	-
„ 6 House - -	2	8	14	-
„ 7 „ - - -	1	4	6	-
„ 8 „ - -	1	4	7	1
„ 9 „ - -	10	16	28	1
„ 10 „ - - -	1	9	6	-
„ 11 „ - -	1	4	10	-
„ 12 „ - - -	1	5	5	-
„ 13 „ - -	1	5	6	-
„ 14 House and Cottage	8	17	31	8
„ 15 House - -	6	9	29	2
„ 16 „ - - -	1	7	13	-
16	46	111	192	16

Houses occupied by single families in the parish of St. John - -	410
Houses let into tenements - - - - - - -	412
Occupiers of one room - - - - - - -	901
Occupiers of two rooms - - - - - - -	414

7131. (*Chairman.*) Do you know what was the mortality of the whole of St. John's parish?—The total mortality was 229.

7132. Out of what population?—Out of 9,858, which is one in every forty-three.

7133. Have you any further information to offer?—Nothing further than in respect of the Whittle Dean water. I am perfectly satisfied that we cannot be better supplied than we are from the Whittle Dean water. I drank the Whittle Dean water throughout the whole of the epidemic without any disease befalling me. I have a stand pipe in my own back yard, and I drank it even when it was mixed with the Tyne water, and never felt any inconvenience from it.

7134. (*Mr. Bateman.*) Did you filter it before you drank it?—No, I drew it fresh from the tap and consumed it. I even was at the expense of buying a filter, and only had it in use one week, till my family declared against it, and I was obliged to abandon it.

7135. (*Mr. Town Clerk.*) I think you say you did not bring this drainage grievance before the Town Improvement committee themselves?—No, but I waited upon the town surveyor in two instances, and explained to him the position that I was in, and the anxiety that I felt to have the place properly drained; and when I left it in the hands of Mr. Wallace, I thought that perhaps he might be induced to lay it before the committee.

7136. (*Chairman to Mr. Oliver.*) I think you state, on behalf of the clerk to the board of guardians, that the cholera map to which allusion was made by Dr. Gavin, and which was then stated to be in course of preparation for the guardians, has not been completed?—It has not.

7137. Did we rightly understand you to say, when we saw you in Gateshead, that there were not sufficient materials for the preparation of that map, and that it could not be prepared?—It was found impracticable to prepare it, the only existing plan being too small to show the localities of the deaths.

7138. The best map of Newcastle in existence was on too small a scale to enable you to lay down the deaths as thickly as they occurred?—Exactly so; but we have a table prepared, shewing the number of deaths in every street and lane in the town, and that is in the printer's hands at present; in a few days we shall have a number of copies printed. *Vide post, p.* 469.

7139. Does that table also contain statements of the population?—It does, with the rates of mortality in each parish.

Mr. R. Warden.

10th March 1854.

Mr. ROBERT WARDEN, examined.

7140. *(Chairman.)* You are the foreman of some manufactory here, are you not?—No, I am a mechanic employed in Mr. Stephenson's manufactory, and the object of my attending here at present is to furnish you with some evidence from the committee of the Central Union of Benefit Societies. A paragraph appeared in the *Newcastle Chronicle* some few weeks ago, relative to a conversation which had taken place between yourself and Mr. Kerss, the secretary of that union, and of which the members of the committee had not been aware; and at the quarterly meeting they came to the decission that the returns sought for should be furnished by Mr. Kerss, leaving the question of any remuneration to Mr. Kerss entirely in your hands. Whether or not, however, we have now prepared those returns for you, and shall be happy to submit them as evidence.

7141. You were not present when I previously stated what had happened?—No.

7142. The facts are simply these: Mr. Kerss came to me, and after giving me the information in outline, introduced the question of remuneration. I asked him what he wanted, and he would not give a distinct answer. At last I stated that although in an inquiry of this kind, instituted by the Government solely for the benefit of the inhabitants of the place, it would generally be expected that the inhabitants, who had any evidence to give, would tender it without asking any pecuniary remuneration, still that it seemed to me quite fair that at all events a person in his rank of life should lose no money, owing to his having devoted his time to the service of the Commission, and that we should be happy to replace any sum of money that he might in that way have lost from applying his time to the service of the public, instead of applying it to his own purposes. We entered into detail, and he stated that he had been engaged three or four days at it, that he earned about twenty shillings a week, and after considerable hesitation that he wanted five pounds or six pounds remuneration, saying, that he had incurred considerable expenses, taking a drop here and a drop there, and so on. I said that under no circumstances would I have anything to do with sanctioning any such amount of remuneration; that it would render me liable to a charge of manufacturing evidence, and that it would utterly damage the value of his evidence; whereupon he said, that in that case he could not be at any further trouble or expense in that matter, but that he would give me what information he had already obtained for nothing, and on that understanding he left me. Subsequently, however, he wrote to me to say that on reconsideration, he could not afford to do so for less than the amount of remuneration that he had originally named, and that he hoped I would re-consider my decision; and from that day to this I have taken no steps in the matter?—You will understand then the nature of my position. When the quarterly meeting of the committee took place, they resolved that the returns should be furnished to you; they being of opinion that they were of essential importance as tending to show the excess of expenditure caused by the cholera amongst a class of the community, namely, working men, and that you might not possibly have an opportunity of obtaining that information from any other quarter.

7143. We shall be most happy to take the evidence from you, if you as chairman of the Central Union of Benefit Societies will put it in; but I confess that, after what passed between myself and Mr. Kerss, I am not anxious to take any evidence from Mr. Kerss himself?—I submit the evidence then. Mr. Kerss has prepared it.

7144. What is the number of benefit societies included in your central union?—The number, I believe, for the present year, is 138, but we have obtained returns from 210 societies. We were not particular as to whether they were enrolled in the central union or not; our sole object was to endeavour to obtain as correct a return, and from as many societies as possible.

7145. Are there as many as 210 benefit societies in Newcastle and Gateshead?—There are more than that; we have not been able to get returns from all.

7146. *(Mr. Bateman.)* How many more do you think there are?—I should say, in round numbers, there are at least thirty or forty more.

7147. That would make, in the whole, about 250 benefit societies in Newcastle and Gateshead?—Yes. A gentleman here goes above me; he says there are one hundred more.

7148. *(Chairman.)* Have you a statement of the number of members enrolled in your 138 societies?—We have. Perhaps I may state that the manner in which the return has been made out is this: We have got the names of the societies, the number of their members, and the amounts paid during the months of September, October, November, and December 1853. We have summed up the gross amount, or the total expenditure, which we can give to you. The name of the secretary is also given, but that is of no consequence, I presume; it is a mere matter of form.

7149. Do you put in this table as evidence?—Yes.

7150. The details from which it has been compiled having been furnished to you by the secretaries of each of the societies as correct?—Yes.

A Table of the Expenditure of Benefit Societies in Newcastle and Gateshead, with the Number of Members for the following years, ending in August in each year.

Years.	No. of Societies Enrolled in Union.	No. of Members.	Sick and Funeral Monies Expended.		
			£	s.	d.
1845	91	2,462	910	19	10
1846	66	3,173	1,326	10	0
1847	75	4,625	1,906	9	9
1848	91	5,444	2,541	1	7
1849	115	6,569	3,803	12	6
1850	111	6,139	2,796	4	10
1851	111	5,724	2,394	9	11
1852	132	5,307	2,304	4	7
1853	198	5,755	2486	8	11
For the four months, September, October, November, and December, 1853, including the cholera time, 210 Societies, consisting of 9,797 members, paid			4,189	1	5
			24,659	3	4

7151. We cannot, I see, accurately compare the expenditures of the several periods mentioned in this table, because the numbers of the societies in each year enrolled in the central union and of their members varies very considerably; but I notice that the expenditure seems to vary pretty much according to the numbers of the members?—The greatest expenditure there set down for any whole year is for 1849, when the greatest number of members also is recorded, 3,803*l.* having been spent by and among 6,569 members. The next greatest expenditure also took place when the next greatest number of members was enrolled, viz., in 1850, when 2,796*l.* was expended among 6,139 members; while in the four several years, 1848, 1851, 1852, and 1853, during which the number of members was lower, and fluctuated between 5,755 and 5,307, the expenditure was also lower, and fluctuated between 2,541*l.* and 2,304*l.*

7152. We will assume, therefore, for the sake of coming to a rough conclusion, that, in the twelve months between August 1852 and August 1853, the expenditure of all the benefit societies varied with the number of their members: on which assumption would follow that, as the nearly 5,800 members of the 138 enrolled societies spent in that time nearly 2,500*l.*, the nearly 9,800 members of the 210 enrolled and unenrolled societies must have spent about 4,200*l.* in the same twelve months?—I dare say you are right.

7153. But then also those 210 societies actually spent 4,189*l.* among their 9,797 members in the last four months of 1853?—Yes.

7154. Whence would appear that they actually spent very nearly as much in the last four months of 1853 as, according to our computation, they are likely to have spent in the whole twelve months preceding?—So it would seem.

7155. Whereas, in those four months, being but the third of a twelvemonth (if we assume the expenditure to be pretty much the same in all seasons of the year), they ought only to have expended the third of 4,200*l.*, or 1,400*l.*?—Yes, according to that way of calculating.

7156. And consequently, as they ought (according to our computation) to have spent only 1,400*l.* in an average four months, and did actually spend nearly 4,200*l.* in the last four months of 1853, including the period of the late cholera epidemic, we may roughly set down 2,800*l.* as the pecuniary loss to those 210 societies and its members, from the late outbreak of cholera?—Yes. I am reminded, however, that there are some societies comprising a great number of members, from whom we have not received returns, so that the total loss would be greater.

7157. You have got returns from the most important ones, I suppose?—I should think we have, but still there are societies comprising a large number on their books, from whom we have received no returns.

7158. (*Mr. Bateman.*) Of course you can form no estimate as to the expenditure by them?—No, not without some better information than I at present possess.

7159. Taking the 2,800*l.* as the apparent excess during the four months of the cholera, that would, however, be considerably under the actual expense of all the benefit societies on that head?—I believe several of those societies were so far exhausted that they have not yet recovered from it. You will be aware that they continue in existence for twelve months generally, at the end of which time they divide the profits, and commence a new year. Some of them, however, I know I am correct in saying, are even now paying up the debt which they have incurred during the time of the cholera, and some of them have ceased to exist altogether.

7160. (*Chairman.*) Were you a member of the Working Man's Sanitary Association in 1847?—I was; I was secretary of the association for some time.

Mr. R. Warden.

10th March 1854.

7161. Did you pay attention to the condition of the town at that time, especially as regards the dwellings of your fellow workmen?—I did.

7162. With reference, then, to the habits of the working classes here generally, supposing you were to take the houses of the working classes here, and to put them into good condition this day—I mean, to provide their houses with proper privy, ash-pit, and other domestic accommodation—and to cleanse and purify them to-day, what would be the state of those houses generally, say a month hence?—I am aware that several instances might be adduced of a good deal of apathy in respect of such matters on the part of the working classes. There are some such instances; but I should think, speaking generally, that you would find them pay attention to their own comfort and cleanliness, and to the means which they had at their disposal for keeping those places cleanly and in order.

7163. Some of them, you say, would be filthy again before long?—Some of them would, no doubt, but not speaking generally.

7164. Would it, in your judgment, be a large proportion?—No.

7165. (*Mr. Bateman.*) Are you speaking of the native population of the place?—I speak of the native population generally.

7166. (*Mr. Town Clerk.*) Do you speak of the imported Irish as well as of the native population?—No. I confine my remarks principally to the native population. I may state that, during an inspection which I made of the town in connection with the Working Man's Sanitary Association in 1847, and again in 1849, I found that, in a good many cases, in fact in the majority of cases, where facilities presented themselves for working men or their families keeping themselves cleanly and in order, they took advantage of those facilities; but where the district happened to be a filthy one, of course I could hardly expect it.

7167. (*Mr. Bateman.*) You found a sensible effect upon the internal condition of their dwellings produced by the external condition of the premises around them?—Yes.

7168. (*Chairman.*) Speaking of the working men of the town as a body, do you think that any considerable proportion of them feel an interest in sanitary questions, and are aware of the bearing of them generally?—I think a considerable portion of them are; and I reason so from the fact of the association, with which I was connected at one time, having numbered about 300 members, although we had but a small place of meeting, and had a very small library of books at the time.

7169. Do you think that a considerable number of the working population are alive to the evils resulting from the existing state of things?—They are. I hear numerous complaints made by them every day of the evils which they are compelled to suffer in consequence of the accumulations of refuse of various kinds in the vicinity of their dwellings, and of the great difficulty which they experience in getting them removed. There is no possibility often of having them removed, and they always have to do so at their own expense.

7170. Are you aware of any instances in which bodies of the labouring population have made any representations to the local authorities upon these points?—I am not aware of any instances of bodies of them having done so, but I have had complaints made by individuals to myself, while officiating as secretary to the Working Man's Sanitary Association, of the condition of the dwellings and the district in which they lived.

7171. I mean deputations of any numbers of them to any of the local authorities?—I was a member of one such deputation myself, which waited upon the authorities of the town.

7172. At what time might that be?—In 1848, I think.

7173. What was the object of the deputation?—The object was to represent to the authorities the necessity of using some means to complete the drainage or render the drainage more efficient; and the reason, principally, that we took an interest in the matter was that there was a great number of our fellow workmen at the time unemployed and out of work, and we thought it a good opportunity for employing them in a labour of that kind.

7174. Were you one of the same deputation to which Mr. Currie alluded?—I was.

7175. Do you know of any other than that one; he alluded to one such deputation and to one meeting in the Guildhall; do you know of any other instance?—I was a member of another deputation which met some of the authorities, not in the council chamber, but in a room at the foot of the Side, which was then used for holding the meetings of the Newcastle and Gateshead Sanitary Association.

7176. Do you remember about what time that meeting was?—It was about 1847, the one that I now speak of, and for the purpose of representing to some of the authorities who were there present, although it was not a meeting composed entirely of the authorities, the necessity of taking some efficient steps to improve the condition of the dwellings of the poor generally.

7177. But since 1848 you do not know of any such?—I do not know of any deputations which have waited upon the authorities since 1848.

7178. About that time, say 1847-8, the railway company were effecting a considerable destruction of houses then occupied by the poorer classes, and I would ask your opinion upon this point. A certain number having then been destroyed, do you think that an

equal or greater number of houses, suitable for the habitation of the labouring classes, has since been built within the old municipal borough?—I think that the destruction of property which took place at that time tended to throw a great many of those individuals out of houses of the kind which was convenient for them; probably more convenient, although situated in a bad locality; and, in fact, I am positive I may say more convenient, than those which they now inhabit. Houses of a like description to the same number, or anything like it, have not since been built for the accommodation of the working classes, and I think they have suffered considerably in consequence, and that overcrowding is taking place to a very great extent from the want of accommodation consequent upon the removal.

7179. Do you think that the amount of house accommodation for the working classes at the time of the epidemic in 1853 was greater or less, proportionately, than it had been in 1847?—I believe it was less.

7180. (*Mr. Bateman.*) You think there was more overcrowding in 1853 than there was at any previous period?—I think so.

7181. (*Chairman.*) Just at the time of the railway operations there would have been a great temporary overcrowding, no doubt, from the railway labourers who were brought into the town, the masons, and so on?—Yes.

7182. But taking the time just anterior to the coming in and going away again of all those railway labourers, you think that the overcrowding in 1853 was greater than it had been some six or seven years before?—I should say it was equal, if not greater at all events, greater I should say.

7183. Have any considerable proportion of those who were dispossessed of their houses in the borough been obliged to go into the suburbs to find accommodation?—There are a good many of them that have had to do so, and the want of proper accommodation for workmen in the vicinity of these manufactories is somewhat felt; they have a considerable distance in some cases to go to obtain a house in any way fit for them.

7184. All who were dispossessed of their habitations in the borough then were not crowded into the houses already in the borough, some will have gone out into the suburbs?—They have. Speaking of the condition of the houses at that time I may state that during one of the years to which I allude, namely 1849, the town was visited by Mr. Rawlinson of the Board of Health; and a deputation of the Working Man's Sanitary Association waited upon that gentleman and presented a report to him. The substance of that report you will find in a newspaper of the time (*handing the same to the Commissioners*).

7185. Were you one of the committee who presented that report?—I was.

7186. (*Mr. Town Clerk.*) Who composed the report for them?—Mr. Rennie; he was a member of the Working Man's Sanitary Association.

7187. (*Chairman.*) And he and you presented the report?—Yes.

7188. (*Mr. Town Clerk.*) Is Mr. Rennie here?—He is not here, he was treasurer of that association.

7189. (*Chairman.*) Do you remember whether these parts of the densely populated districts, which were then alluded to as very deficient in sanitary regulations, were parts inhabited by the members of the society themselves, and which they spoke of from personal knowledge?—Part of them were; many of them lived in the districts to which they spoke.

7190. Do you remember what particular districts were thus alluded to?—The western suburb principally, I think. Buckingham Street, Tindal Street, Blenheim Street, Blandford Street, and the streets in that vicinity. A great many of the members of the Association lived there.

7191. What improvement has taken place in that locality since?—I believe Buckingham Street has been paved since then, and probably Blandford Street has been partly paved since then, if not altogether. The only difference which I can recollect is in the paving of the district; it is somewhat better paved than it was at that time, but the house accommodation is in no way improved.

7192. And they have got no additional privies or ash-pits?—None that I am aware of.

7193. Are the privies and ash-pits generally kept in a better condition than they used to be?—I cannot see a great deal of difference. I have an opportunity of course of being in districts inhabited by my fellow workmen, and I find that at all events there is an equal want of accommodation. They are equally tardy in removing those nuisances now as they were at that time.

7194. Are the streets better scavenged than they were?—Yes; I think generally speaking they are.

7195. What is the state of the interior of the dwellings; are they cleaner and more wholesome than they used to be?—Not much.

7196. I mean the passages, staircases, and so on?—No.

7197. They have not been very frequently whitewashed and purified, have they?—In some districts; but not in that district to which I allude, the western suburb.

7198. In the other districts to which you allude, on what occasions have you known them to be whitewashed and purified and put in order?—I do not recollect any instance in which there was a general whitewashing of a district.

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7199. But of the worst houses in a district or in a street?—I believe during the worst of the last epidemic there were some instances, but not generally. Some landlords did so.

7200. Between the cholera visitation of 1849 and the cholera visitation of 1853, can you remember any instances in which, to your knowledge, half a dozen houses were whitewashed and purified and made clean and wholesome?—I cannot call to my recollection any in that district.

7201. In Pandon and Sandgate, or any other district, can you remember any houses which were purified and whitewashed between the cholera visitation of 1849 and the cholera visitation of 1853?—No, I cannot.

7202. The only instances, as I understand you, in which you do remember such whitewashing and purifying, were under the pressure of an epidemic?—Yes.

7203. (*Mr. Town Clerk.*) You do not go much into Sandgate or Pandon, do you?—It is a district that I have had occasion to go through very frequently.

7204. (*Chairman.*) Has "the ventilation of these districts," of which you complained, with respect to "the admission of light and air," been very materially improved?—No; I think not.

7205. And how is it now, as to "the accumulations of filth and refuse of every "description in the streets and yards" of which you here speak?—There is not such an accumulation of filth in the streets, in consequence of some of them, as I previously stated, having been paved; but the condition of the yards is not much improved.

7206. Yards and entries, which are not public highways and public thoroughfares?—They are not much improved. There are accumulations of refuse of various kinds there.

7207. Then you allude to "certain new streets which present outwardly a more neat "appearance;" but you say that "the internal arrangements" for ashes, refuse, and so on, "are bad and detrimental to health." Has any material improvement that you know of taken place in those respects?—I should say there is not much improvement there; and from this circumstance, that a good many of the houses in those streets which at that time were occupied by single families are now let out as tenemented houses.

7208. They have passed from the condition of self-contained houses to that of tenemented houses. You then make allusions to the kitchens being "several feet below "the level of the street, and consequently damp and unhealthy." Have you known many of those cellar kitchens to be shut up and closed as unfit for dwelling-places?—There have been some in the eastern district of the town, but I do not know of any in the western.

7209. I mean previously to the late outbreak of cholera?—No, I do not know of any that were closed up as unfit for habitation previously.

7210. At the end of this report the committee of the Working Man's Sanitary and Mutual Improvement Society suggest the propriety of converting some buildings in the town into lodging-houses, similar to those which have been productive of so much good in London, termed model lodging-houses; has anything of that kind been carried out?—No.

7211. Are you still of opinion that it would have been desirable for the working classes generally to have had such lodging-houses provided for them if possible?—Speaking from my own personal experience and my knowledge of many of them with whom I have had an opportunity of conversing, I should say that they would have taken advantage of such a building as that had it been constructed.

7212. Would they have been content to pay a little higher rent to get a healthier habitation?—Yes, they would.

7213. You spoke just now of your having a difficulty in getting ash-pits and privies emptied and accumulations and so on removed; has that difficulty been felt seriously?—Working in an extensive manufactory where so many men are employed, I speak without exaggeration when I say that there is hardly a week but what I hear some of my fellow workmen making complaints of the inability which they have of getting those places cleaned out and removed.

7214. They do not know any parties to whom to apply officially to get the thing done?—They do not. I may state that some of them, who were aware that I was about to be present here, said that they hoped I would advert particularly to the fact of the great inconvenience which they suffered from the circumstance of those places being in such a bad condition.

7215. You will be glad to hear what Mr. Wallace has stated to us in evidence already, that they are now preparing to carry out a comprehensive system which, no doubt, will act beneficially in that respect?—I am very happy to hear it, for it is one of the great evils which we working men have to suffer. We are willing to pay for those things, but we sometimes cannot get them done anyhow.

7216. Is there any other point upon which you would like to make any observation, water, or anything of that sort?—With regard to the water I may state that during the time of the cholera, and in fact before, we were not in the habit, in that particular department in which I am employed in the manufactory, of making use of it; we could not make use of it.

7217. Do you ordinarily use the Whittle Dean water there?—Yes, it is supplied to the manufactory, and we commonly use it.

7218. But during the last summer, as you said, for some time before and during the epidemic you did not use it?—No, we sent out of the manufactory to obtain water to drink; we were allowed to do so.

7219. What objections did you see to the water?—The objections that the men had to it commonly were that they considered that both the taste and the smell were so particularly disagreeable that it was unfit to drink. None of the workmen would use it if they possibly could help it.

7220. Did you ever smell anything offensive about it yourself?—Yes, that it had a peculiar smell.

7221. Was it offensive as well as peculiar?—Yes, offensive, nauseous.

7222. Could you form any judgment as to what that smell arose from?—I was given to understand that the Whittle Dean water company were drawing a certain supply of water from the Tyne, and knowing the source from which they derived it I concluded that it was in consequence of the abominable condition of the river at the place from which it was drawn.

7223. (*Mr. Bateman.*) Did you ever at any previous time see the water in a similar condition, or was your objection to it confined to last summer only?—There was one time before, I forget how long it is ago, but I recollect one time when it was particularly discoloured, not so highly coloured however as it was during last summer, nor was the smell equally offensive; there was no smell at all in fact before.

7224. (*Chairman.*) Did you ever perceive anything offensive to the smell before?—Never till last summer.

7225. (*Mr. Bateman.*) Where do you live yourself?—I live in Gateshead myself at present.

7226. Did you at the time of the cholera?—I lived in Gateshead at the time of the cholera.

7227. Did you find the water bad at your own house during that period?—Yes, just the same.

7228. (*Chairman.*) Did you notice the smell at the manufactory in Newcastle as well as in Gateshead?—Yes.

7229. Did you notice any difference between the quality of the water in Newcastle and in Gateshead?—I did not perceive any.

7230. (*Mr. Bateman.*) Referring to the expenditure of the benefit societies, does this sum to the end of the year represent the whole charge which has come upon the benefit societies so far as they are here included?—Yes.

7231. (*Chairman.*) This heading of "sick and funeral money" includes all your expenses?—Yes.

7232. You pay a man so much a week when sick and unable to work; and you also pay so much for each funeral, and that includes the whole of your expenses?—Yes, the whole.

7233. The 210 societies have had no expenses which are not represented there?—Not that I am aware of.

7234. (*Mr. Bateman.*) Does this paper include the expenses only of the individual members, or of their wives and their children also?—It includes any member of the family who may have died. When a man is a member of one of those societies he is allowed 4*l.* for his own funeral money, 3*l.* for his wife, and 20*s.* for a child under 14 years of age.

7235. And attendance for sickness to every member of his family?—No, no medical attendance.

7236. Merely for the funerals of the members of his family?—Merely that.

7237. Any sum for medical attendance to himself?—He has generally five shillings a week allowed him for thirteen weeks.

7238. For medical attendance?—He may dispose of it as he thinks proper, but that is paid to him; it is the allowance given to him in consequence of sickness.

7239. (*Chairman.*) In consequence of being sick and unable to work you give him a certain sum for so many weeks?—Yes, thirteen weeks at five shillings, thirteen weeks at two shillings and sixpence, I believe, and twenty-six at one shilling and sixpence.

7240. And he may spend that weekly allowance in obtaining medical attendance or in any other way he pleases?—Yes.

7241. (*Mr. Bateman.*) Then this is, in fact, merely the cost of the funerals of members' families and of the weekly allowances to members themselves when absent from work on account of sickness?—Yes; but I may state that the charge for sickness during this last year has been trifling compared with deaths.

7242. (*Chairman.*) You could get medicine gratis from any dispensary or any parochial surgeon?—Yes.

7243. (*Mr. Town Clerk.*) You spoke of the overcrowding in 1853 being greater than in 1847. To what particular districts of the town did you refer when you so expressed yourself?—The western part of the town particularly.

7244. In Marlborough Street, and the Westgate township?—Yes, about there.

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7245. (*Chairman.*) When you said that you thought that the overcrowding was greater did you speak entirely of the suburbs, such as Westgate?—I should say the overcrowding would be probably in more districts than one; but I speak more particularly of that district.

T. Gray, Esq.

THOMAS GRAY, Esq., examined.

7246. (*Chairman.*) You are an old resident in this town, are you not?—Yes, I was born here.

7247. And you are now a member of the town council?—Yes.

7248. Did you interest yourself much in the drawing up of the Bill for the improvement of the town last year, 1853?—Yes; in 1852 it was drawn up.

7249. And brought in in 1853?—Yes.

7250. There are one or two clauses with reference to the history of which we should like to hear if you have anything to state. There was one clause, the 56th clause of the Bill, which proposed to enact that no house should be built, or even occupied, in streets narrower than thirty feet, with a clear twenty feet opening at either end. The 24th section of the Act, however, as distinguished from the Bill of 1853, wholly omits the words "or occupied," and reduces the number of feet from thirty to twenty, and from twenty to fifteen, and altogether spoils what was a very stringent and valuable clause. Can you tell us how that came to pass, or why?—There was such an amount of discussion on the clauses of the Bill, both in the public meetings and in the council, that I cannot at present charge my memory whether that alteration was made by the town council, or whether it was afterwards made in committee of the House of Commons by Mr. Bouverie. If my impression is right, I think it was made in the council, but I cannot at the present moment charge my memory with it.

7251. It is a matter which would have struck you as doing a serious damage to your favourite child?—No doubt of it; there was a great deal of damage done to it.

7252. (*Mr. Town Clerk.*) There was a great deal of discussion upon that clause?—Yes, it was discussed very much.

7253. And altered in both places, as far as I recollect?—I cannot precisely say where the final alteration was made. It certainly was discussed in both places; but I think, if I remember rightly, that it was altered in the council.

7254. (*Chairman.*) Are you still of opinion that it would have been desirable to get such a clause enforced in this town?—Clearly so.

7255. Do you generally remember the circumstances under which some others of the more powerful clauses of the original Bill were reduced to less powerful and less stringent ones in the Act of 1853?—I have a general very distinct recollection.

7256. Will you state what the circumstances were?—In the first place the Bill embodied many police clauses, which excited the angry feelings of some parties, and were made use of by others as a power for creating an agitation against the whole Bill. I am speaking relative to the Bill when it was first published. Then in the compilation of that Bill a part of the Edinburgh Act was taken, empowering the corporation to erect slaughter-houses, and to make other erections, which created a strong feeling in another part of the community. Then we had no power in any former Acts to rate the tenemented property, the state of which is the cause of so much complaint; and I presume under the old corporation it never paid rates.

(*Mr. Town Clerk.*) No.

(*Mr. Gray.*) In my knowledge this property never paid rate, though it produces about 60,000*l.* rental. The owners of that property thought it would be a hardship; that was another party that opposed me. The Bill also proposed to take in Westgate and the other townships, over which we had no power. There was a misunderstanding at first about that too; but after it was properly explained, I may say that the bulk of the inhabitants saw the necessity of the charge. These townships were wished to be taken in, and as I thought, and the bulk of the council thought, in a very fair way; not as the Health of Towns Act proposed to take them in, namely, that whether agricultural or otherwise they should be charged with the full rates of the borough, but we first proposed to make them subject to the clauses for paving the streets, and that then, as the town advanced into the country, by a resolution of the council they should be subject to the whole of the rates. That was got over; but the aggregate of these misunderstandings or complaints created a powerful ferment, aided also by the exertions of one individual in particular, who took the pains of sending a circular round and garbling what I consider one very important feature of the Bill, which was that as far as possible every charge should be made by a rate, so that it should go through the ordeal, first of all, of whether the measure was necessary or not, and then afterwards the more trying one, which a man always finds made a personal one when he has to appeal to his constituents about it, namely, touching their pockets. I thought it was a good sound principle of direct taxation. It was made to appear that the corporation were wishing to erect buildings for certain tradesmen at the cost of the whole community, setting aside entirely the benefit that these buildings, namely slaughter-houses, would create. The result of all this was that we had several very long discussions in the council

itself. I think we had three meetings of the public in the council chamber, or two; and we also had a meeting of a most fierce description in the lecture-room, at which I was not present, where I was charged with having been guilty of so many acts of criminality. I attended another one, and there defended myself; so that I have a most vivid recollection of the trouble and pains which any one has to bear who takes these matters in hand.

7257. (*Mr. Town Clerk.*) Were you supported at that meeting by the friends of sanitary improvement?—Not one, nor at any of the meetings; so far from being supported there, in fact I was opposed.

7258. (*Chairman.*) Were these public meetings, or town council meetings?—Public meetings held in the council-room. In the midst of all this turmoil there were many clauses which I regretted to see thrown out. Then we had to go to the House of Commons before Mr. Bouverie, who was very particular relative to the builders' clauses, and who preferred in his situation as chairman, to see public measures instead of local Acts.

7259. (*Mr. Bateman.*) Not being able to get all you wanted, you endeavoured to get as much as you could, rather than lose the great amount of good which such an Act would confer upon the town?—Yes.

7260. (*Chairman.*) Was the resistance of the owners of tenemented property to the tenemented property rating clause a serious item of the opposition which you encountered?—It formed a very important feature in the matter; they were a very important class of people.

7261. Are they a very important class of people in this town?—You may judge from the rental; I believe it is 60,000*l.* a year in the whole borough.

7262. What may the whole rental of the borough be?—Nearly 300,000*l.*, I think.

(*Mr. Bateman.*) This would be one fifth of the whole rental.

7263. (*Chairman.*) You carried your point against them, however?—Yes.

7264. But you did not carry the building clauses?—A good many of them were carried. We did not carry them *in extenso*, but we carried them as extracted from the Towns Improvement Clauses Act. One clause that was new I regretted very much to see struck out. All local Acts, as you are aware, have the widths of streets defined. The Towns Improvement Clauses Act has that also; but the new feature in the clause was that at the back of houses a certain width should be kept, according to the height of the houses.

7265. Was your difficulty in respect of opposition chiefly with the public, or with the town council?—To a man, in the Town Improvement committee, they supported me; there was not a single dissentient. They were quite willing to argue the matter; they did so, and they supported me during the whole period from the commencement of the affair till the very end of it. In the town council, upon divisions, the opponents of the Bill did not muster more, I believe, except upon some few divisions, than eight.

7266. (*Mr. Bateman.*) Out of how many?—Fifty-six. The clause to which I allude, after providing that there should be a width of fifty feet for the carriage road and ten feet on each side for the footway, in streets where there were houses three stories high, and in the case of houses of two stories, thirty-five feet for the carriage road and seven feet on each side for the footway, stated that at the back of houses of three stories there should be fourteen feet for a carriage or cartway, and at the back of two-storied houses ten feet; and that in no case should there be a less space between the backs of houses than thirty-six feet.

7267. Between the upright walls of each house?—Yes.

7268. (*Chairman.*) I see that the number of the Town Improvement Committee is eighteen?—Yes.

7269. All those supported you?—Yes; I do not know one that shrunk back. The next clause that I regretted to see struck out was as to the size of rooms.

7270. (*Mr. Bateman.*) Is that a new clause also?—No; I believe that was taken from the Birkenhead Act. The bulk of the building clauses were taken from Birkenhead and Manchester; very few from Leeds, but a few.

7271. (*Chairman.*) On which committees of the town council were you last year?—The Town Improvement committee and the Watch committee were the two I was on.

7272. Have the Watch committee charge of paving?—No; they have charge of the police and the lodging-houses now.

7273. I am afraid, with reference to the matter of lodging-houses, they had not exerted themselves very strenuously before the late outbreak of the cholera?—They had no special charge of lodging-houses at that time.

7274. (*Mr. Bateman.*) In the passing of this Act, for which the town is so much indebted to you, you found, I understand you to say, that a general resistance arose from parties whose pockets would have to be touched in some way?—I think so.

7275. Do you think that the knowledge of the existence of that feeling had previously deterred other less resolute and bold men than yourself from attacking such a many-headed animal?—I was cautioned at the time I took charge of it that I was undertaking a task of which I did not know the difficulty, and encountering an amount of resistance that I, perhaps, was not prepared to meet with. From the various cautions and allusions, and hints and warnings which I got, I could well imagine that your supposition is correct.

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7276. The Act of 1853 was the first by which the corporation got authority sufficient to control many of the evils under which the town has laboured, was it not?—Yes, efficiently.

7277. (*Chairman.*) Did you ever hear the subject of preparing a map of the borough and the sewers, on an adequate scale, discussed before the Town Improvement committee?—I have heard it mentioned over and over again the three years that I have been in the council; not a map of the borough, because it was considered that the map published by Mr. Oliver was a very efficient one, in which, however, I do not agree; I do not think it is a very efficient one, because I think it is too old, and in other respects it is not a map which I would consider a sufficient map for a town like this. We have different drafts of the sewerage.

7278. We have been struck very much at seeing that, as early as the year 1848, more than one deputation, memorial, and so on, went up to the town council on a matter so obviously requisite as that of an adequate map and plan of the drainage. It is a matter of surprise to us to find that to this day we have never been able to get a map, so as to understand the state of the borough, or of the borough sewers?—That did not occur to me; the drawing of the sewers seemed to give me a perfect understanding of them. I am speaking of two subjects now; first a map of the whole borough, of which I do not think we have a good one, but as far as we want to know the positions of the sewers, I think we have no difficulty in that.

7279. But you require a better map surely to enable you to understand the system and the details of the drainage than you do to understand the locality of streets, and how to find your way about the town?—I admit that we ought to have a map of such a description as to show the whole bearing of the surface, and that is one reason why the towns improvement clauses relative to the making of a map, 13 and 16, were proposed to be incorporated. I did not consider that we had a sufficient map of the borough.

7280. (*Mr. Bateman.*) You have no map, for instance, with reference to the sewers, upon which the house drainage or any particular communication between the respective premises and the main sewer of a street can be laid down?—No; I am not aware of one.

7281. Nor upon which any peculiarity about the sewer, a manhole or anything of that sort, can be distinctly marked?—I have not seen one.

7282. That is a very important point in a town like Newcastle?—There is no question of it.

7283. How much money do you anticipate that you will be able to raise per annum from having now brought the tenemented property under your control for rating?—I think we shall raise upwards of 3,000*l.* a year upon all the rates.

7284. Hitherto your rates have been exceedingly light in Newcastle?—So I understand, as compared with other towns.

7285. Your private property has enabled you to do something for the town?—A great deal. I copied out these figures for the purpose of giving them to a public meeting in November, by which you will see that the corporation have paid out of their own private funds since 1837, 112,062*l.* in respect of streets, watching, lighting, and paving, over and above the sums derived from the thorough toll, and the watching, lighting, and paving rates. I expect you will find that correct to a figure, but it can be checked.

7286. That has been paid out of the corporate property?—Yes, the general funds.

7287. What is the thorough toll?

(*Mr. Town Clerk.*) The thorough toll is an octroi payable upon goods coming into and going out of the town, which is applicable to the repair of the streets. The rates levied for watching, lighting, and paving are applicable for those particular purposes, and the rest is made up from the borough fund, from the property of the corporation. The whole expense of those operations is put on one side; the sources of revenue legitimately applicable to those purposes are put on the other; and the balance or deficiency is taken from the general property of the corporation.

(*Mr. Gray.*) In connection with that I may observe that it was in 1850 only that we had power to raise certain of the rates, and till then we were obliged to take from the general fund. In 1850 power was taken to raise the watch rate from 6*d.* to 9*d.*; the lighting rate from 2*d.* to 6*d.*; paving and watering from 4*d.* to 6*d.*; and the sewerage from 2*d.* to 4*d.*

7288. (*Chairman.*) Did you increase the lighting rate in 1850?—Power has been taken by the Act of 1850, but they have not yet been increased.

7289. You have not increased the lighting rate, though you have had power?—No.

7290. With reference to one of the other points which you have mentioned, sewer rate, what is sewer rate put down under?—Sewer rate I think you will find there under its own head.

(*Mr. Town Clerk.*) Not in that; the sewers are a distinct account. In no case have those powers of increasing the rates been exercised.

(*Mr. Gray.*) Power was taken in 1850, and a motion was made, I think, in 1851 to increase the rate. It was lost in the town council, and, I think you will admit, for a very good reason. The rating of the town required revision, and when it was revised

we got about 1,700*l.* a year more, from parties who had previously been underrated; and till that had been done, it was manifestly unjust to charge the parties fully rated with increased rates.

7291. (*Chairman.*) And since that revision you have not had occasion for any increased rates?—We have not had occasion yet, but shall have by-and-bye, in the sewers rate.

7292. (*Mr. Bateman.*) I find that in the two years 1852 and 1853, in each of which the annual expense was about 14,700*l.*, the expenditure was considerably less than in any of the previous years, except 1837 and 1838, in one of which years it was 14,000*l.*, and in the other 14,200*l.*, in round numbers. I am curious to know why the last two years, 1852 and 1853, should have been so much less expensive than the previous years?—In the watching the police force was reduced in 1851, which would show in 1852.

7293. The general expenditure is from 17,000*l.* to 19,000*l.* a year?—Yes; then you will find that the streets of the borough are kept up by the thorough toll; and I can only account for the decrease in the expenditure by the fact that the town has been so much improved in that particular part.

7294. Is it to be accounted for in that way, or in this, viz., that less has been done; because the *primâ facie* impression might be that less has been done?—If less is required, less would be done of course. But my impression is, that the town has been brought into a better state, both in flagging and paving. A great deal has been done year by year, and it will show ultimately.

7295. Does it come to this, that the flagging and paving which has been done from time to time has rendered the expense of maintaining the town less considerable per annum than it was formerly?—I should say so; that it was well done, and was not therefore required to be done every year.

7296. (*Chairman.*) Is there any other point on which you would like to give us any information, with reference to any subject of our inquiry?—No; I can only state generally, that all the time I have been a member of the Town Improvement committee, they have been most anxious to carry out every change and every suggestion for improving the town that has been made to them. I can say that most decidedly.

7297. For the three years that you have been connected with them?—Yes; there has been no suggestion made to them, but they have done to the best of their ability to carry it out where practicable.

7298. How, then, do you account for their neglect of the valuable powers which they have had; because, excepting in a few details, they have had ample sanitary powers, and might have made almost a model town of Newcastle by this time if they had pleased. Can you give us any explanation of that?—In what point?

7299. In every point. For instance, in respect of the non-exercise of their power to abate the smoke nuisance; their power of cleansing filthy and unwholesome dwellings; directing privies and ash-pits to be emptied and cleansed; accumulations to be removed; private streets and yards to be levelled, paved and flagged, and so on?—These powers were taken in 1846. Then in 1848 power was given to the guardians by the Nuisances Removal Act, who acted upon it. I was a member of the board at that time. I was not a member of the council then. I presume the only reason was, that the council thought that, as there was another body, the guardians, putting those powers in force, it was better to leave these matters to them than to have two parties doing the same thing in the town.

7300. And yet you must be well aware that there is no similarity scarcely, much more identity, between the two sets of powers. The powers of the Local Act of 1846 would have enabled the council to provide proper domestic conveniences, privies, ash-pits, and all that kind of thing; to cause private courts and entries to be paved; and in many other ways to anticipate and prevent the existence of a nuisance; whereas the Nuisances Removal Act of 1848 only enabled the board of guardians to look on while the nuisance was being created, and to remove it when made; so that in respect of the most valuable of the council's sanitary powers the board of guardians did not possess a shadow of such power under the Nuisances Removal Act?—I was not a member of the council then, and that is the only explanation which I can give. Having, however, exercised the Nuisances Removal Act myself, as chairman of the All Saints' district, I differ with you in supposing that its powers are only a shadow, for they are very arbitrary and despotic.

7301. But they do not enable you to prevent a single nuisance?—I do not know how that can be; there are plenty of penalties, and I know we prevented a very great number.

7302. That is to say you removed them?—Yes; and prevented their recurring, because the parties knew that if they did recur they would be fined. We had no complaint from these same places again.

7303. What period are you speaking of?—Of 1848, when I was a member of the board of guardians.

7304. What were the fines?—According to the offence. We had only occasion, I think, to summon about four or five parties; all the rest complied instanter in cleaning the places out.

7305. But the nuisances would recur and did recur every week and every fortnight; and the reports of the inspectors of nuisances, which I have read, and the purport of which has been confirmed by both the chairman and clerk of the board of guardians, bear testimony to that?—I think not.

Vide ante, Q. 6383-6394.

T. Gray, Esq

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7306. They say too with their own lips that these things are recurring and re-recurring?—I think not. You have my book and will see my initials to each case reported, and you will not find the same things occurring again and again at the same place. If they had occurred again, we should have summoned the parties before the magistrates and have inflicted the ten shillings a day, or whatever the penalty was.

7307. Do you remember instances of any persons being in that way fined?—Yes; I summoned the corporation. Mr. Town Clerk will recollect that. (*Mr. Town Clerk.*) Yes, you were no respecter of persons.

7308. I must remind you of some evidence which you gave before Mr. Rawlinson in 1849. "Mr. Thomas Gray wished to state, on behalf of the board of guardians, "that in every instance where a written complaint had been forwarded to them, "the complaint had been attended to at once. But many parties were mistaken as to the "extent of their powers which, though peremptory and strong, were limited. To that limit "they had gone in every instance, and in the case under consideration, the board had done "exactly what the Act allowed, viz., cleansed and removed the matter complained of. But "the evil was of daily recurrence, and required to be cured at the fountain head?"—Yes.

7309. For that curing at the fountain head the Local Acts give, except in one or two details, complete sanitary power; and that is the point upon which we wish to know whether you can give us any information; namely, why the powers of the Local Acts for preventing the evil and curing it at the fountain head have been allowed to lie dormant, while only the very inferior powers of the public statute for removing nuisances, when they have been brought into existence, have been enforced?—All laws are limited. I never knew of a law but what was limited, and "the daily recurrence" meant there not instances in which the same individuals were brought up, but instances of fresh parties.

7310. (*Mr. Bateman.*) You mean to say that that daily recurrence was of the same evil but not by the same individual?—Certainly.

(*Mr. Lockey.*) With reference to the opposition which Mr. Gray said he had received in respect of the Improvement Bill, I should submit to the Commissioners to ask him if he is aware that any portion of the opposition arose from another circumstance as well as from the more special ones that he laid stress upon; these were because it touched the pockets of the rate-payers, and that there was besides a personal animosity existing in the discussion. Is he not aware that there was also a strong feeling of a want of confidence in the manner in which the corporate affairs were conducted?

7311. (*Chairman to Mr. Gray.*) Have you any opinion upon that point?—I have. I am aware that one individual has always expressed a great want of confidence in the corporate management of the expenditure and the finances; but I am aware that that individual in all the three years that I have been a member has never yet submitted a plan by which they could be better managed, but has limited his mode of action to lecture room meetings and vapouring away in a newspaper.

7312. (*Mr. Lockey.*) The question that I put was whether there was not a general feeling of that kind?—Certainly not.

7313. (*Mr. Bateman.*) Was there a considerable section of the town who had that feeling of distrust as to the manner in which the corporation managed their business?—I should say certainly not.

Mr. W. Shipley.

MR. WILLIAM SHIPLEY, examined.

7314. (*Chairman.*) Mr. Warden stated to us that you had some observations to make, which we shall be very glad to listen to?—I was one of the committee appointed by the Central Union of Benefit Societies to draw up this return.

7315. With reference to the expenses of the late epidemic?—Yes. I am also a letter carrier in the post-office of Newcastle. My division is the north-eastern part of the town. It commences with Carliol Square, New Bridge Street, Shield Field, Union Terrace, Heaton Terrace, Gibson Street, and so forth. It contains seventy-six streets and terraces, 1,300 houses, 1,700 families, with a population of nearly 10,000.

7316. And I am afraid there was a good deal of mortality there too?—It was about the best part in the town, I think. There were some particular places where it was bad; but taken as a whole, I believe it was the healthiest.

7317. Have you Vine Lane in that district?—No, that is more in the northern division. In this district there are several places which are in a most abominable state.

7318. Do you mean in your district?—Yes, I speak of my own. The worst place is one of the name of Chatham Place, near Gibson Street; it comes into Gibson Street; it is in a filthy state, and was during the cholera, and has remained so ever since. It was never looked at by any one. It stands (I have measured it) from six inches to fourteen inches above the level of the flags; it is unpaved.

7319. You mean that the filth which has accumulated in the unpaved way is that height above the flags?—Yes; as to the water which the people put out, there is in a manner no channel, on account of the filth that is there. It runs down over the footway in Gibson Street. In wet weather it is a most filthy place. I have several times got nearly to the knees in crossing, when I have missed the stepping stone.

7320. What description of houses are there there?—Two stories, a ground floor and a floor above. With the exception of three cases where there are two families in one house, they have one family in each house.

7321. Was there much mortality there?—Six women died.

7322. About how many houses may there be in Chatham Place?—About eighteen.

7323. Occupied by single families generally?—Occupied by about twenty families.

7324. Six people died there out of about a hundred then. Have they any domestic conniences there, privies or middens?—They have privies and middens, but they are very badly attended to, in respect of getting them cleaned out; they have many times complained to me that they could not get them cleaned out.

7325. You say Chatham Place is unpaved?—Yes.

7326. And according to your account it is not scavenged either?—No.

7327. You went through all that district at the time of the cholera?—I have been on that district two years; I go through it twice every day, Sundays excepted.

7328. Do you hear any complaints?—The people complain regularly that they cannot get the place kept clean.

7329. What sort of people live there?—They are rather a better class of working people.

7330. (*Mr. Bateman.*) Are they mechanics?—Yes; but several of them, I believe, are seafaring men, and their families are resident there.

7331. (*Chairman.*) Do you ever see the inside of the houses?—Yes, frequently.

7332. What is their condition?—Clean and tidy, generally speaking.

7333. They are then not at all among the worst class of the population, who are so filthy in their own habits?—No, not so bad.

7334. You say they experience difficulty in getting their privies and ash-pits emptied?—Yes. The next place of importance is Union Terrace; it stands more to the north-east from there; Stepney Field, perhaps it may be called on the map Hardy's Buildings, it frequently is so. It is a square of houses that faces outward. It contains, I believe, about twenty houses, occupied by about twenty-six families.

7335. What mortality was there there?—Four deaths, and a number of severe cases; but they recovered.

7336. (*Mr. Town Clerk.*) Union Terrace is still in Gibson Town, is it?—You may call it so; it is bordering Shield Field.

7337. (*Chairman.*) Have you any idea of the size of the little square in which this terrace is built?—It is a good size. It is a square that looks outward. Those that do not occupy a whole house have the lower flat. They have access to a small yard, where there is a privy and small midden-stead. The upper apartments have a small place in which the occupiers do their drudgery; and they have a place likewise to put their ashes down into the midden underneath, and a small privy. Round about this terrace it is neither flagged nor paved. Excepting just these last few weeks when it has been fine weather, indeed for the most part of the year, it is impassable, excepting just at certain places where there are stepping stones. Under their own doors, where the foot-path is, I have seen the women time after time carrying quantities of bricks and stones to lay in front of their doors, so as to enable them to get in to their houses without being half way up their legs. It is most abominable.

7338. Was there the same state of things there about the cholera time?—The same. There are no scavengers or anything there.

7339. Are the people dirty in their habits?—No.

7340. The interior of the houses is clean?—The interior of the houses is clean and orderly. In fact, the west front is altogether a better class; the northern side is most dreadful.

7341. Do they feel there the same difficulty in getting their privies and middens emptied?—They do. The other day, when I went and looked at the privy, it was standing quite full; and outside, some of the midden-steads, in a dreadful state.

7342. Do you think that the people there trouble themselves about it, and that they would willingly get these places emptied if they could?—Many of them have declared to me that they would willingly pay if they could get it out.

7343. What is the next place?—The next place is the Shield Field, a small town, as you may call it. It contains twenty-three streets. There are only three out of those twenty-three streets that the scavenger goes into, along Pleasant Row, along the front of Shield Field Green, and half way up Shield Street.

7344. That is to say, along the one main thoroughfare in that direction?—Yes.

7345. In the little streets, such as Franklin Street, Camden Street, and so on, do they never see the scavenger at all?—No.

7346. Wesley Street and Carlton Street do you include also?—Yes. Wesley Terrace, the next place, is a most dreadful place in the front of it. I have seen carts stuck fast up to the middle of the axle-tree. It runs from the foot of Shield Street. Wesley Street, Carlton Street, and Kennedy Street, particularly across Shield Street and Wesley Street, are the worst. There is another row of houses on the opposite side called Copeland Terrace; and you must go right round before you can get across to them, and you get over the shoes; but this weather it has got dried up. In that same row there was a house, I remember, and, in fact, most of the houses along there, between Wesley Street and Carlton Street, are frequently inundated, from the common sewers breaking into them.

Mr. W. Shipley.

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7347. Have they cellars there?—They have underground rooms. The kitchens are under the level of the street. They have two flats above. In No. 6, which was occupied by a Miss Foster, a teacher of music, a very respectable lady, just a few weeks before the cholera her kitchen had the furniture floating in it for several days, from the overflow of the sewers or drains.

7348. Do you know of more than one such case in that district?—Hers was a particular case, that I was going to name. She took the cholera, and died of it in that house.

7349. Did you ever know an instance of any other house there being in that condition?—No, not out of those six houses in Wesley Terrace; that was the only case of death.

7350. Was there much mortality in the rest of this part of the Shield Field district that you alluded to?—There were a good many deaths along Wesley Street. What we call Lower Wesley Street contains about fifty houses. It is pretty well paved and flagged now. I was travelling in that street twice every day for sixteen months, and I was not aware that it was paved, above 100 yards of it; it was so covered up, on account of there being no scavenging.

7351. The paving was covered with filth?—Yes. It was well paved, but covered with filth. It was so much so, that when the cholera took place, and several deaths occurred in that locality, labourers were employed with picks to pick it up, and it was only then that I discovered that it was paved. Many a time I got up to the ancles in crossing the street. In front of Wesley Terrace it wants paving and filling up still.

7352. Opposite the house where Miss Foster lived?—Yes.

7353. Is there any scavenging at all in that part of Wesley Terrace?—No.

7354. What is the condition of the houses there; have they proper domestic arrangements behind them?—Yes; they are occupied by very respectable parties. The owners of the property, and the occupiers of it, frequently clean round it. They have applied to the corporation. Mr. Wallace has promised to get it done, but he says that he cannot get men.

7355. To get what done?—To get it paved.

7356. (*Mr. Town Clerk.*) They are new streets, are they not?—Wesley Terrace has existed fourteen years, some of the houses. From eleven to fourteen years the houses in Wesley Terrace have been built. Mr. Wallace said that they could not get men, and at the same time other streets have been paved that were not in such a very bad condition. When a place like that was so shameful, it should have been attended to. Carlton Street is something similar to Wesley Street, you cannot see the pavement for the filth that lies upon it. In Upper Wesley Street there is a portion, which runs for about ninety yards and for the last twelve months prior to the cholera, this was the resort of boys to sail their boats on in summer, and to skate on in winter.

7357. (*Chairman.*) Is this a place where the earth has been excavated for making bricks, or is it the ordinary surface?—The most part of Shield Field has been excavated for bricks.

7358. Where you allude to their skating and sailing their boats, does the water stand in pools in the old brick excavations?—Yes. It is well flagged on each side, but whenever there is any rain, or anything of that sort, it cannot get away. There is no drain or sewer to take it away, and it stands there till the weather itself dries it up.

7359. (*Mr. Bateman.*) Are you speaking of the ground within the street?—Yes.

7360. (*Chairman.*) Where carriages and carts would go along?—Yes; it is a fine broad street, too.

7361. There is flagging for the foot-ways?—Yes.

7362. But the cart-way is full of holes and water?—Yes.

7363. Are there any cellars which are underground dwellings in that part?—No, they are all built upon the level. Barker Street is something similar; and in the whole of my district there is not one public convenience.

7364. You said of the six houses in Wesley Terrace that they were pretty well provided with domestic conveniences?—Yes.

7365. In Upper Wesley Street is that the case too?—They have a small midden-stead behind.

7366. To each house?—To each house; but it is a very narrow part. In Carlton Street, many of them carry it through the houses.

7367. That is to say, the back yards of these houses in Carlton Street are very confined?—Yes.

7368. And they have no backway to them?—Part of them have.

7369. Some of them have and some have not?—Yes.

7370. When they want to empty their privies and their middens, some of them have to lead the contents through the house?—Yes, some of them.

7371. Are they respectable people in Upper Wesley Street?—Working people.

7372. Are they clean in their habits, I mean?—Yes.

7373. They are not such as we have had a description given of occasionally, with regard to some of the lower Irish?—No, there are none of that sort.

7374. Is there any other point on which you wish to speak, or are those the chief places?—Those are the chief. Camden Street is an old street; it is unpaved, but it stands clean in summer time.

Mr. W. Shipley.

10th March 1854.

7375. Camden Street is one of the twenty-three streets that you alluded to as being unscavenged, all but three of them?—Yes; when I say twenty-three streets, I mean the whole of Shield Field. There are many houses building in Shield Field now, where there is no convenience at all attached to them.

7376. And there is no public convenience in the neighbourhood either?—No. In the whole of my district, commencing from Carliol Street, there is only one; and that is in the corporation yard, which is shut up at six o'clock at night, and shut up on Sundays; with very little alteration or expense it might be made available at any time. There is likewise not a public pant, well, or pump in the whole of that district of seventy-five streets. There is also another street of great consequence, Nelson Street, leading out of Trafalgar Street; it runs east out of the centre of Trafalgar Street; that is a most dreadful street too, quite impassable for carts at many seasons of the year; and with the children going to school, it has become almost as great a thoroughfare as any part of Newcastle. From the centre of the town to Buxton Street, Shield Field, and so forth, it is the most direct thoroughfare.

7377. Is that a continuation of Carliol Street?—Yes; after you get past the goal it runs from there to Argyle Street.

7378. It is unpaved?—Yes.

7379. And unscavenged?—Yes. Picton Terrace comes down into the centre of it; it is unpaved likewise.

7380. It is macadamized, is it not?—No, neither one nor the other; only part of it flagged, and very imperfectly flagged.

7381. What kind of people are they in Nelson Street, Trafalgar Street?—Respectable mechanics, retired some of them.

7382. What is the condition of their houses within?—Good, clean, and orderly.

7383. Was there much mortality there?—I think there were twelve deaths.

7384. In how many houses?—There is what they call Back Picton Terrace, that is a small lane running out of Nelson Street, at the back side of Picton Terrace; in that, and in Picton Terrace together, there were twelve.

7385. Do you know whether any representations were ever made to Mr. Town Surveyor about the paving of Chatham Place?—I cannot say for Chatham Place

7386. That was where the greatest mortality was?—Yes, and the smallest place.

7387. Where do you live yourself?—I live at 61, Pilgrim Street, nearly opposite the High Bridge End.

7388. Have you any cellar?—No; we have a back yard, water-closet, and everything.

7389. Did you ever, in the course of the summer, notice anything in connection with the sewers there?—Nothing, excepting at Wesley Terrace, where they were so full of water, that the things were swimming about in the kitchen; that is the only place where I saw it myself.

7390. Did you ever smell anything particularly offensive?—Yes, particularly so.

7391. Where?—In all those places which I have described, Chatham Place, and so on. When I have missed the stepping-stone, and my feet have gone in among the slush, a most obnoxious smell has arisen.

7392. Did you ever notice any smell from the gulley grates about there?—No.

7393. (*Mr. Bateman.*) The streets I suppose looked as if they did not belong to anybody?—Just so; quite disordered.

Mr. J. Johnson.

Mr. JOHN JOHNSON examined.

7394. (*Mr. Town Clerk.*) You are conversant with that part of the town called Gibson Town?—Yes. I have the management of it at present.

7395. (*Chairman.*) Including Gibson Street, Howard Street, Richmond Street, Buxton Street, and Chatham Place?—Yes.

7396. (*Mr. Town Clerk.*) Is Union Terrace in your district?—No. That is the other side of the bridge.

7397. What have you to say for the state of Gibson Town?—It is in a tolerably good condition.

7398. (*Chairman.*) What about Chatham Place?—I cannot say as much for that place.

7399. Are you in the habit of going there daily, or do you take a fine day for your visits?—On fine days it does not look so bad. But at times it is not in a very good condition, I must say.

7400. (*Mr. Town Clerk.*) Is Chatham Place under your management?—No. We have little property there, three houses; but the other streets are in good condition.

7401. (*Chairman.*) As I understood Mr. Shipley, he said that in the roadway there was an accumulation of filth, to the extent of a foot or fifteen inches above the level of the flags on either side in Chatham Place, and that at times he got in almost up to his knees?—It is not so high as that.

(*Mr. Town Surveyor.*) There has been no complaint, and it is a place which they are bound to pave themselves.

(*Chairman.*) No doubt you have power to make them do so, but you do not seem to have done it.

Mr. J. Johnson.

10th March 1854.

7402. (*Mr. Town Clerk.*) Did you ever see Chatham Place?—(*Mr. Town Surveyor.*) I have just passed up it.

7403. (*Chairman to Mr. Johnson.*) What is the fact as to this roadway?—On the one side it is lower than the flagging, and on the other side it may be eight or ten inches. I cannot say to an inch; but the houses were badly laid out originally.

7404. (*Mr. Bateman.*) Is this accumulation of which we have heard correctly described as an accumulation, or is it the original surface of the ground?—I think it is the original surface. Ashes may have been laid on to raise the surface there; but it must be the original surface, because on the one side it is below the flagging, and if it had accumulated it would have been higher on that side as well.

(*Mr. Shipley.*) It is higher; but it is much higher on one side than it is on the other.

7405. (*Chairman.*) Whatever the height may be, you said that you occasionally got into the slush knee deep?—Frequently. It is quite a common practice with them in Chatham Place, in order to keep it as dry as possible next to the flags and to get a crossing, to throw ashes on. And now, when everything is very dry, if Mr. Wallace or any one else will take a walk to Gibson Street, from the footway in Gibson Street he will see that the whole breadth of Chatham Place is just one wet mass, from the wet running constantly down. There is no grate or anything in Chatham Place.

(*Mr. Town Surveyor.*) Just a few yards below it was precisely in the same state, and the owners petitioned, and it was sewered a few weeks ago.

7406. (*Mr. Town Clerk to Mr. Johnson.*) Did your tenants in Chatham Place ever complain to you of the state of affairs?—I cannot recollect it. I say we have only three tenants there. I cannot speak about it.

7407. (*Chairman to Mr. Shipley.*)—I think you said that you had heard the people living in Chatham Place, and who are decent mechanics, complain frequently of the state of things?—Yes. There was also a tan pit, against which the parties endeavoured to make out a nuisance.

7408. (*Mr. Town Clerk.*) How did the tan pit get off?—The tan pit was victorious.

7409. (*To Mr. Johnson.*) We have heard complaints during this inquiry of the state of Gibson Town, and of various places in it?—There are something like five hundred tenants; and about four-fifths of that number occupy tenements. The other fifth occupy self-contained houses. The tenemented houses, of two rooms each, range from about 6*l.* to 9*l.* free. That is including light and water. The self-contained houses are not free; they pay rates beyond.

7410. (*Chairman.*) The three which you have in Chatham Place are self-contained houses?—Yes. They have separate doors, two rooms each, that is two over each other; but they have separate doors. They may be said to be self-contained houses.

7411. You go into the ground floor rooms from a door on the ground, and you go through a passage and up a staircase to the other part?—Yes. In each of those houses they have a yard, that is three-story houses generally, they are divided into three tenements of two rooms each; and to each house they have a yard with an ash-pit, privy, and water laid on. They are well flagged and kept generally clean. I built within the last two years and a half a portion of two large streets on rather an improved plan, that is giving them water-closets and other conveniences inside instead of outside; not in the rooms, but projected from the staircases. These answer very well. I give them also a cellar to wash in.

7412. In what street is it that you have established water-closets within the last few years?—One side of Buxton Street and Melbourne Street.

7413. Do you know how many houses you have in Buxton Street?—From about twenty-six to thirty.

7414. Self-contained houses?—They are now let into tenements. They were originally built as self-contained houses; but it seemed not to answer.

7415. What number of families may you have had in Buxton Street, in those twenty-six houses, in August 1853?—Three to each house on the average.

7416. Eighty to ninety families?—Yes.

7417. Out of that population do you know how many deaths there were?—I think there were very few in those two streets, Melbourne Street and Buxton Street. I only recollect two deaths in the two streets.

7418. With reference to the other streets in your district, such as Richmond Street and Howard Street, have they water-closets or privies?—All privies. There are very few water-closets even in the self-contained houses, except those recently built.

7419. (*Mr. Town Clerk.*) Water-closets are a modern refinement?—It is understood so.

7420. (*Chairman.*) Speaking of the one side of Howard Street and the other side of Richmond Street, which adjoin one another, how many houses do you think you may have there?—In Howard Street I think we have not more than six or seven, in Richmond Street twelve to fifteen.

7421. How many houses may there be in the whole northern side of Howard Street, and the southern side of Richmond Street?—About twenty-four. I would not be sure to one.

7422. Occupied as self-contained houses?—Generally.

7423. Have you any notion what the mortality was there?—I believe it was very small in those two streets; I did not pay much attention to that. I had enough to do to clean the places and keep them in order.

(*Mr. Shipley.*) On the southern side of Richmond Street there are twenty-four houses, and about twenty-eight families, and I believe there were four deaths.

7424. Do you know whether there was any part of your district in which there was any considerable mortality; any one particular street, Blagdon Street, or any of those?—(*Mr. Johnson.*) I cannot be sure as to that; I did not pay much attention to it.

7425. (*Mr. Town Clerk.*) Are you able to succeed in maintaining habits of cleanliness amongst your tenants, or do you make any effort to do so?—We have been at considerable expense. We have improved the houses as much as possible, and cleaned them from top to bottom many times; and I find a great difficulty in that way. In fact there is very little gratitude generally amongst them. At the end of the quarter they have gone, two or three days before it, and have taken not only the key but taps, and have even destroyed the paper of the walls for no purpose.

7426. (*Chairman.*) What class of people do you speak of, the native population or the Irish?—I think the native, from the public works, some from the opposite side of the water.

7427. Are they English, Scotch, or Irish?—I think they are mixed; principally English.

7428. Mechanics?—Mechanics, generally.

7429. When you go into those houses, do you find them dirty?—A good many of them.

7430. As compared with the dwellings of the Irish in the town, do you find them better or worse?—I take them as worse, considering their circumstances, because they are very fine houses; they have been well and substantially built, beautifully furnished in fact, and they ought to encourage cleanliness; but it has done the opposite.

7431. Then you seem rather to despair of making anything out of your tenantry in that respect?—I have not a very high opinion of them.

7432. (*Mr. Town Clerk.*) You have taken a good deal of pains?—A very great deal of pains.

7433. (*Mr. Bateman.*) I confess I had rather an impression, from what I have heard here, that the native population of Newcastle are clean people, or would be clean to a great extent if they had an opportunity of being so?—It may be so in other parts, but I do not find it amongst the people that I am speaking of, not generally, there may be exceptions.

7434. (*Chairman.*) You make no great distinction between the native population and the Irish; in fact I think you said that some of them were worse than the latter?—Worse, considering the character of the houses they live in. The Irish have no encouragement, because in many parts where they live in single rooms, there are no windows, and no floors, and no plaster on the walls, and you cannot expect them to be clean under those circumstances; but the houses which I supervise are beautifully done up, and are papered in most cases.

7435. (*Mr. Town Clerk.*) You were not careful in the selection of your tenantry, I am afraid, because I think that the mechanics here are a very clean and respectable class generally?—The men themselves may be, but I think it belongs to the wives. I think there is as much improvidence on the one side as the other.

7436. (*Mr. Warden.*) Am I to understand you to say then that you would sooner have your houses tenanted by Irish labourers than you would by mechanics?—No, certainly not. We take very good care that the Irish do not come into our houses, except a few who are well recommended.

7437. (*Chairman.*) And they happen to contrast rather favourably, as compared with your English mechanic population?—We are at times very much deceived in the mode of getting houses. The wife generally will come, tolerably well dressed, and give a good character and a reference, and sometimes even a small note of paper from the landlord. We let the house, and we find in about a couple of months, when I visit the place, that they have almost no furniture, and that the house is in a very filthy state, and that the dress which she then had on did not belong to herself.

7438. (*Mr. Gilmore.*) I suppose when your houses are empty, you are not very particular whom you take?—That is not so; we are very particular about the tenants. We would rather have them empty than have bad tenants.

7439. (*Mr. Sibbet.*) I think Mr. Johnson is quite right there, for there are a very great number of them that are empty?—No, not more than in any other part of the town.

7440. (*Mr. Gilmore.*) Where do the mechanics, occupying your property, work; at what manufactory?—I cannot tell; they work at some manufactories, but I never inquired particularly.

7441. It is a question of some moment; the mechanics of Newcastle have some respect for their character yet?—I have no objection, if you will walk down with me, to show you a few examples.

(*Mr. Gilmore.*) I am much obliged to you, I do not like the locality.

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7442. (*Mr. Bateman.*) How it it that this district has got a bad reputation?—(*Mr. Johnson.*) It has not a particularly bad reputation. The houses were built at first as self-contained houses. You could not make so much of them as houses built for that purpose; the people rather removed to Shield Field, and other parts, where they had water-closets and other conveniences more suitable. But in those new houses that I have built, there is a first-rate class of tenants.

7443. (*Chairman.*) It is possible that in certain localities you may have exceptional circumstances; but would you entertain the same opinion with regard to the working population of the town at large as you have expressed with regard to your own tenantry. Do you think that the native population of Newcastle is at all as dirty and filthy in its habits as the lower Irish, of whom we have heard so much?—I cannot say about the other parts of the town. With those that I have had connection with, I have had very great difficulty. There are very few exceptions that come up to my idea of cleanliness, with all the conveniences which I have given them. I have spent oceans of money; in fact I believe Mr. Gibson fancies himself ruined by my ideas of sanitary improvement; and I think a visit to the place will show what has been done in the way of improvement.

7444. (*Mr. Warden.*) Is Bedford Street in your district?—Yes.

7445. Have you many mechanics living there?—Yes, on one side.

(*Mr. Warden.*) I was through it the other day, and I think I found it in the worst condition of any part of the surrounding district, or any part of the town that I have seen lately; but with regard to the population belonging to the working classes of the community, I should certainly very much doubt it. There are characteristics by which you can discern any population, and I arrived at the conclusion that the principal part of the inhabitants, whatever they were, did not at any rate belong to the working population of the vicinity. Besides, the place was in a very disgraceful state; there was hardly any paving, there was no channel, and there was stagnant water in one or two places.

7446. (*Chairman to Mr. Johnson.*) Do you happen to know certainly that any considerable proportion of your tenantry are really what you may call mechanics, that is to say, people constantly or occasionally at work in any manufactory or place of business here?—Yes, a good proportion of them are; the rents would prove so; in Buxton Street and those principal streets they average about 8*l.* and 8*l.* 10*s.*, including water, so that that is much higher than the lowest classes can pay.

7447. Can you mention any single instance of any one man working at any one manufactory that you know of?—I should not like to name a person; perhaps it might be the very person whose house I should not like any one to go in and see; but I have no objection if any gentleman calls to walk through with him, and give him names and give him addresses.

7448. (*Mr. Bateman.*) You judge of the fact of their being mechanics in consequence of the rent of the houses, do not you?—No; I am just stating that that rent is considerably higher than the lower class of mechanics or ordinary labourers generally can pay.

7449. (*Mr. Warden.*) Are you aware of the wages received by labourers in many of the manufactories on the north and south sides of the Tyne?—I believe they are from 14*s.* to 18*s.* a week.

7450. Is no higher rate of wages than that paid by manufacturers in some of the chemical works in the vicinity?—Not for labourers' work.

7451. You are not aware of a labourer not being a skilled mechanic receiving as much as 22*s.* to 24*s.* a week?—No; I was not aware of any labourer receiving more than about 14*s.* to 18*s.* a week.

7452. (*Chairman.*) We have not put any questions to you except in reference to this one point, but we shall be most happy to receive any evidence which you may have to offer upon any other point?—As to the drainage of the immediate locality, that bordering the property and through it is very excellent. There is a large trunk drain coming from the New Road and Ridley Villas, as fine a drain as I have ever seen; a deep drain with a considerable fall, and it drains the entire property, Buxton Street, Stepney Lane, Melbourne Street, and Bedford Street.

7453. You have no complaint to make against Mr. Wallace in respect of your district?—I must say that Chatham Place and Bedford Street are in a bad condition.

7454. (*Mr. Town Clerk.*) This Gibson Town is a private speculation of Mr. Gibson's, is it not?—Yes.

7455. He made the drains himself?—Yes.

7456. And paved the streets?—Yes; they generally are very well paved, except those which I have mentioned.

7457. (*Chairman.*) Are you satisfied with the drainage?—Generally, with one or two exceptions. In Gibson Street the main drain is not so low as it ought to be; it is about nine inches higher than it ought to be, I think.

7458. Are there any cellars there?—Yes, they all have cellars.

7459. (*Mr. Town Clerk.*) Was it constructed by Mr. Wallace or Mr. Gibson?—By Mr. Gibson; and it is not deep enough.

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7460. (*Chairman.*) Do they experience any evil results in the cellars?—At times some of the cellars are flooded.

7461. (*Mr. Bateman.*) From sewage water?—I cannot say as to that; it does not get away at times because it has to be taken in a slanting direction to catch the main drain with a less fall than it ought to have; it comes back at times.

7462. (*Chairman.*) Does it come up the drains again back into the cellars?—I do not know what is the cause, but I know the water is stopped at times.

7463. Do you mean to say that dirty water which they throw into the sink does not get away?—No doubt of it, and the water from the roofs.

7464. Supposing the cellars were empty, you would not be liable then to any flooding, would you?—I think so; it is in some of the empty cellars that I have observed it, that the roof water does not get away at times, when we have rains, and the same with the sink water.

7465. (*Mr. Bateman.*) Of course it must be the case sometimes if the floor of the cellar is below the level of the sewer?—Yes, and they have taken the house drains in a slanting direction as well.

7466. At a lower point?—At a lower point; but that is only in one or two cases just about the junction of Howard Street and Gibson Street.

7467. (*Mr. Gilmore.*) Has your property been very frequently visited by the inspector?—We like to see the inspectors as seldom as possible, and I believe we have not so many visits as in many other parts of the town.

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Mr. Thomas Forsyth examined.

7468. (*Mr. Town Clerk.*) You have resided in this town for some years?—Yes.

7469. You were formerly at the head of the police in this town?—I was.

7470. But have been in retirement for some time?—Yes.

7471. In the year 1848 were you employed by Mr. King, the contractor with the corporation for the scavenging?—I was. I had the whole management for five years.

7472. From what time?—From the 8th of March 1848 till the 4th of June 1853.

7473. Did you put forth that hand-bill in 1848 (*handing a paper to the witness*)?—Yes, I wrote the manuscript and had it printed.

7474. "Notice to the Public. Mr. King, having contracted with the corporation of "Newcastle for the removal from the borough of the street and market sweepings, begs "to inform the public that he has made such arrangements as will enable him to convey "from the town all such sweepings, likewise the house ashes, night soil, and other manures "from the premises of the public. The charge for removing the ashes and soil from the "ash-holes will be according to the agreement made with the parties. Application "for the removal of the ashes, soil, and other manures, to be made to Mr. Forsyth, "the agent, No. 1, Ellison Terrace, Picton Place, Newcastle-upon-Tyne. February "22, 1848?"—Yes, we did not get commenced till the 8th of March.

7475. Had you any communication with Mr. Alderman Potter upon the subject of the removal of the night soil and middens?—Yes; this was in the year 1850.

7476. Did Mr. Alderman Potter give you any encouragement to exert yourself to get the night soil and middens removed?—He did; he was passing the depot at that time in Argyle Street, and I was standing giving directions to the men, when he called me out, and he said, "Oh, I just want to see you. I was with some friends last night, and they "feel themselves so much more comfortable with having their night soil and these things "taken away than what they did formerly; they could not get it done; they are moderate "charges, and it has been of great service both to the town and to the agricultural "interest."

7477. Did you take any steps to secure early information, when parties wished to have their middens cleaned?—Yes; with most of the large buildings, such as the Trinity House and the hospitals, we contracted to take it out as it was necessary, and keep them clean; and several respectable families of the town paid a certain sum; Dr. Headlam was another. I sent the men to examine them and clean them out, whether they wanted it or not, that is to say, whether they were full or not; to keep them in a clean state; and where there was flagging, if there was water to be got, that they were to wash the place.

7478. In that hand-bill you refer parties wishing such removal to take place to yourself?—Yes.

7479. Did you ever neglect to attend to an application?—Never.

7480. Were you moderate in your charges?—Very; what I paid myself 2*s.* 6*d.* for, I only charged in some matters 6*d.*, and sometimes 1*s.* When they had to wheel along a narrow passage in difficult places, there was so much more time taken up and more money required.

7481. Had you any communication with Mr. Gibson, who superintends the scavenging for the town surveyor?—A great deal. I frequently met him in the morning between three and four o'clock and five o'clock, when I have been going my rounds, and he would say, "Such and such person has been applying to me; I recommended him to call upon "you. "I said, "Yes, it is attended to." Frequently, when they applied to him, he sent

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them to me, and it was attended to immediately, and up to the present day I get several letters from several people to know whether I could recommend them to anybody to clean out their ash-holes.

7482. And you never neglected any application made to you?—None.

7483. (*Mr. Town Surveyor.*) What was the reason for giving it up?—We could not get waggons to convey it along, and it was accumulating. Mr. King was out of health, and I was sick of it, being so often disappointed, having the men's wages to pay, and for three days being without waggons.

7484. The railway company could not supply you with waggons?—No; and by reason of that I advised Mr. King to have done with it.

7485. (*Mr. Town Clerk.*) That was in June last?—Yes; in May, Mr. Holroyd agreed to take it at a certain price.

7486. There was an accumulation of traffic upon the railway companies, which they were not prepared to meet?—Yes; that was the reason which they assigned.

7487. And then you found a difficulty in getting rid of it?—Yes, and getting a little infirm myself.

7488. (*Chairman.*) I think you mentioned that you made a regular arrangement with the Trinity House and the hospitals, and Dr. Headlam and the more respectable families?—Yes; once a month their ashes and night soil were to be taken away, and that was done during the night.

7489. Did you do much in the lower parts of the town, in Sandgate and Pandon?—A great deal. Mr. Johnson, who gave evidence here yesterday, could have stated a good deal of conversation between him and me, but I think his memory seemed to fail him. There were the best materials about there, because night soil made the best manure.

7490. How often do you think you cleaned out those privies and middens in Gibson Town?—Whenever Mr. Johnson sent word; my agreement with him was to take it at a certain price, but that he was to send us word whenever it was wanted, and it was done immediately.

7491. How often might that be?—As he thought it was necessary that it should be taken away.

7492. Do you think it was once a month?—No; sometimes it would run three months. Then there is a great deal of property in that neighbourhood belonging to private parties. Some of them I made agreements with and took it away once a month. I always found it was the best way to do so.

7493. (*Mr. Bateman.*) Other property mixed up with Mr. Gibson's property in Gibson Town?—Yes; a great deal of private property. Mr. Gibson has not above half in his own hands. It is private individuals who have built upon speculation, and who have purchased since.

7494. (*Chairman.*) Supposing we had gone round the town in 1852 or 1853, in what state should we have found the privies and middens, generally clean and empty, or dirty and full?—In 1852 you would have found the midden steads in the lower part of the town with hardly anything in. At that time there was a very great demand. I was not taking less away than fifty tons of what accumulated with our own carts, and from the corporation.

7495. Supposing in July and August 1853, we had gone round the town with you, in what state should we have found it then?—It was bad, and it is not good at this day; it was in a very indifferent state. The reason was that Mr. Holroyd could not get waggons to convey it away.

7496. (*Mr. Bateman.*) Who is Mr. Holroyd?—(*Mr. Town Clerk.*) He succeeded Mr. Forsyth.

7497. (*Chairman.*) Without going into the causes or reasons of it, we should in fact have found in July and August 1853, the privies and middens of the town in a very indifferent state?—You would; there were a very great many applications. The letter carrier who gave evidence yesterday has brought me three and four letters of a day, application from people not knowing that I had retired.

7498. Did you refer them to any other person?—I always referred them to Mr. Holroyd; and I likewise took orders from those that I had been personally acquainted with, and wrote a note to Mr. Holroyd signifying what was wanted, but he could not get waggons to convey it away.

7499. For one reason or another the people could not get their privies and middens emptied?—No.

7500. And as you say, chiefly owing to the inability to get railway waggons to convey it away?—Entirely that. Mr. Holroyd is completely sick of it now from the disappointments.

7501. (*Mr. Bateman.*) Had this been a growing evil that you could not get waggons for the conveyance?—As their other trade increased, there were more difficulties. Their goods trains, as they call them, increased so considerably that they employed their waggons in conveying those goods.

7502. It was gradually becoming the case from the commencement?—Yes; and I have complained to Mr. Newcombe, the superintendent in the goods department.

7503. (*Mr. Town Clerk.*) Your trade was not a favourite trade with them, carrying manure?—No, but I have seen them getting 70*l.* a month; our bills came to that sometimes, merely for conveying along the road. They neither had anything to put in nor to take out.

7504. (*Chairman.*) But they had to find the waggons and convey them along?—Yes; to put them into the depôt and take them out when I gave notice.

7505. (*Mr. Bateman.*) As long as you were able to take it away properly, was it a paying trade to the contractor?—It was a large quantity, and a great quantity we got out for nothing. We did the delivery for private people, taking from the midden steads and night soil; there was no expense attending it. I have no hesitation in saying that a very considerable trade might have been had; that it might have been improved a great deal if there had been waggons and engines for the demand.

7506. You had no waggons of your own?—No.

7507. (*Chairman.*) There was plenty to convey away?—Plenty. We contrived, if we could, to avoid making long journeys which did not pay; going up to Westgate and Rye Hill, and those places, the journey was too long; and I have found on calculating it that we were like working for nothing.

7508. (*Mr. Bateman.*) Did you neglect those places?—High up there I would not go at last; that was the fact. I kept where it paid best.

7509. You emptied those which paid best and left those which did not pay to their fate?—Those which were far off; but in the case of a great many of the poor people within half a mile of us we took it out, when they said they could not afford to pay anything, without charging them anything, when the inspector has complained of them. Mr. King left everything solely with me, so that I had entirely my own way with them.

7510. (*Chairman.*) Is there any other point to which you would like to speak?—Yes; there is a runner of water in front of where I live, in Ellison Terrace; it looks into Pandon Dean. There is a runner of water, which comes down there, which is very annoying at times; so much so, that of a summer's morning, I have a little garden in front of my house, and when I have been sitting enjoying myself looking at my garden, I have been obliged to shut my window.

7511. (*Mr. Town Surveyor.*) Do not you think that Mr. Glyn will be disposed to get it removed?—He will. I have had some conversation with him. I am agent for Mr. Glyn.

7512. (*Chairman.*) Is the Pandon Dean, to which you allude, uncovered in front of your house?—Yes; the property on one side belongs to Mr. Ellison, and the other is church land, in the possession of Mr. Walter; but it is very annoying.

7513. Has it been so long?—Yes; but I knew it when there was a fine clear stream. I fished in it when I was a boy.

7514. (*Mr. Town Clerk.*) Did you drink it when you were a boy?—Yes; we were obliged to drink it.

7515. (*Chairman.*) Did you ever complain to Mr. Wallace about it; to say that you were annoyed by anything there?—No; I thought Mr. Ellison, the proprietor, was the proper person, and he tunnelled part over.

7516. Is there any other point?—As to paving, the postman yesterday forgot to name Ellison Terrace, which is not paved in front; I do not go much there, but leading down from Picton Place it is not paved; it wants paving. I named it once to the town surveyor, and I would not pay any rent till it was paid for.

7517. When would that be?—Two or three years since.

7518. And it is just in the same state as it was then?—Yes; it is shocking. I made an observation, that I wished to have that place paved leading down by my front door from Picton Place. I said, "I wish the corporation would do it; if the corporation will do it I will pay them from the rental." They were only entitled to one-half, while Mr. Ellett must do the other. They said, "Get the corporation to do it and we will pay it."

7519. (*Mr. Town Clerk.*) It is a private speculation?—Yes.

7520. And they would like the town to do what they should do for themselves?—I told Mr. Ellett and Mr. Rutledge, the owners on the two sides, that if they got the corporation to do it they would pay them.

7521. (*Chairman.*) Is there any other point?—I can only say this, that the carriage way and footway never was in such good order as it is at present. I was twenty-two years an officer in the corporation and had a great deal to do. I made a weekly report to the magistrates every week I had to find fault.

7522. (*Mr. Town Clerk.*) You were an officer in the service of the corporation from the time when you retired from the Northumberland militia and a military life at the end of the war?—Yes.

7523. Till 1835?—Till 1837.

7524. You would have had great opportunities of seeing the state of the paving and of the scavenging?—Every place, hole and corner, and every lodging-house, and every house of ill-fame; and I made a private report as the head of the police.

7525. Looking at the state of the town then, and the state of the town now, do you think they have improved in scavenging?—Yes.

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7526. They have advanced with the age?—Very much so. I have said to Mr. Gibson, "This is a capital plan which you are proceeding on in cleansing out the gutters first, not "to choke them up, but to sweep into the middle of the street, and then your carts get "it off without its going into the sewers;" that struck me.

7527. Has the paving and flagging improved do you think too?—Yes; formerly the corporation only put a kerb stone and one row of flags, and sometimes paved them with the stones, the sharp side up, which annoyed people.

7528. That was the ancient custom?—The ancient custom, and very bad it was. I know in my night rambles I wished that it was only mended. The depots for manure and things were also in the heart of the town. Where Blackett Street and Eldon Square are, it was a depot for manure; there were, perhaps, 10,000 tons lying there of all kinds of filth, and it was a great place for the boys going hunting the rats.

7529. (*Chairman.*) You have said that the roadways and footways of the town have never been in so good a condition as they are now?—Never.

7530. How long have they been in that state?—I think they have gone on progressively improving since the new corporation came in.

7531. Since 1837?—Particularly since Mr. Wallace came in; in short, they have gone on progressively with everything I may say, for I still feel an interest in walking about the streets and taking notice, as I have always been accustomed to an active life.

7532. (*Mr. Town Clerk.*) Mr. Wallace was an officer of the old corporation, as you were?—He was. Mr. Wallace came in in 1835. I immediately saw improvement. Our late surveyor had his own way; there was no getting him out of the old school. He was a very decent man, but there was no getting him out of the old school.

7533. (*Chairman.*) Is there any other point?—No; nothing else.

Mr. J. Gallon.

Mr. JOHN GALLON examined.

7534. (*Mr. Town Surveyor.*) Will you be kind enough to state, as shortly as you possibly can, the condition of the Westgate district some time ago, and what it is now, and what you have done there for the last few months respecting the scavenging principally?—Previously to September last there was nothing done in the scavenging in the Westgate whatever.

7535. (*Mr. Town Clerk.*) Up to August the council had no power?—No; and there had been nothing done whatever. Some of the streets had been made twenty years, and never had a brush put upon them.

7536. (*Mr. Bateman.*) You speak of the Westgate township?—Yes.

7537. (*Chairman.*) That includes, or did include a very considerable population in August 1853, did it not?—About one-fifth of the whole population of the borough.

7538. 15,000 to 20,000 people?—Yes; there would be about 18,000.

7539. And you say that, for twenty years, some parts of that township had not been scavenged at all?—No.

7540. (*Mr. Town Surveyor.*) What number of scavengers have you on now?—There are nine on at present every day.

7541. Have you carts also?—Yes; and since that period there has been paid for wages 105*l.* 19*s.* 3*d.*

7542. For scavenging exclusively?—Yes; for cartage 66*l.* 17*s.* 6*d.*, and sundries, for brushes and deposit, 11*l.* 18*s.* 8*d.*

7543. (*Chairman.*) You could hardly have known where to begin to scavenge in such a district?—There was one street, Wellington Street, from which, the first day or two, we took 200 or 300 loads.

7544. What is the length of Wellington Street; how many hundred yards?

(*Mr. Town Surveyor.*) 300, I should think.

(*Mr. Gallon.*) More than 200 yards.

7545. (*Chairman.*) Then you took something like a load of filth away for every yard the street was long?—There are several holes in the pavement, which will hold half a load; there is no charge upon the proprietors for this; it is done gratuitously by the corporation. They have no power to charge the occupiers or tenants.

7546. (*Mr. Town Surveyor.*) Do you in the Westgate pay anything at all for cleansing?—No; the whole of it is gratuitous expenditure; we pay a highway rate, but it is expended solely upon the highway and footpath adjoining it.

7547. (*Chairman.*) Were you about there at the time of the epidemic?—Yes; going about daily among the privies and ash-pits, from six o'clock in the morning till ten o'clock at night.

7548. Did you notice any coincidence of considerable mortality in filthy places?—In the filthiest place in the Westgate, I believe, there was not a single death.

7549. Which is that?—One or two houses in Peel Street; the very worst place there.

7550. (*Mr. Town Clerk.*) There was not a death in the worst houses?—No.

7551. (*Chairman.*) Was there any mortality in Peel Street?—There was; about four deaths.

7552. (*Mr. Town Clerk.*) But the dirtiest houses you say were exempt?—Yes; that is to say, the privy and dwelling-rooms were underground, and behind there was no drainage from it; but there was a sort of cesspool, which was covered with a large door

Previously to that it was not known to the inhabitants residing there that there was such a place; it was only when an accumulation of about three feet deep was taken from the passage way, that it was discovered through the wall; there was a hole in the passage, and the excrements were swimming about on the top of it, and the only exit for them was below the sleeper joists of the dwelling room.

7553. (*Chairman.*) In that house there was no death?—No, not any. I took Dr. Gregson and some other members of the town council on purpose to see it, because I was surprised that in some of the very worst places there was no mortality.

7554. Is the exterior of Peel Street dirty?—It was.

7555. Was it at the time of the cholera?—Yes.

7556. Was there any paving there?—Yes.

7557. Any scavenging?—None previous to that period.

7558. Was the roadway covered with accumulations of filth piled up?—Yes; the grates of the sewers were purposely blocked up with ashes by the parties residing close to them, to prevent the people depositing their night soil there.

7559. (*Mr. Bateman.*) Then what did they do with what they had to remove from their houses?—They threw it into the ash-pits.

7560. There was nothing removed from Westgate. Westgate seems to have been gradually accumulating dirt?—Yes; a great many of the dwellings are worse now than at that period; for the tenants have got to know that they cannot be compelled to empty them; and they let them get in that bad way.

7561. (*Chairman.*) Speaking generally of the privies and ash-pits in that district which you know, were they in a bad condition, as well as the roadways and footways?—Yes; there was always an accumulation. For this last year or two the parties went about and took them out, generally at a small charge; but latterly, owing to the difficulty of getting rid of them, parties have had to go about and seek parties to get them out; they could not get them away.

7562. (*Mr. Town Surveyor.*) Do you think there is any report getting abroad there, that the corporation are likely to be compelled to empty their ash-pits free of expense?—Yes, there is.

7563. (*Chairman.*) Is there any other point?—I was very much struck that there should have been so few deaths in Peel Street, more especially as there was such a number of paupers there; and knowing that pauperism had been so very prevalent in Newcastle for the last few years, I was rather struck with it.

7564. How many houses are there in Peel Street?—About twenty-four or twenty-five.

7565. Were they mostly occupied as self-contained houses?—No; tenemented houses, the whole of them.

7566. How many families would there be to a house?—I should think they would average nearly four. I was employed at the taking of the census, and I took that district.

7567. Twenty-four or twenty-five houses, four families to a house, would make 100 families in Peel Street; which at five to a family would make the population to be 500; and there were only four deaths in that population?—Yes, those are all I know; there might have been more than that.

7568. What kind of people are they in Peel Street?—Of very low and bad habits; a number of Irish; you cannot get them to put the dirt away from them. I may say that in the year 1851, one of every four and four-tenths of the whole population of Newcastle received parochial relief; and taking the working people to be seventy per cent. of the population, one of every three working people in the year 1851 received parochial relief in Newcastle.

7569. (*Mr. Bateman.*) Was 1851 a very bad year?—It was considered by the press to be most prosperous, and yet we had that great amount of pauperism. In the year 1841, the expenditure was only 16,900*l.*, whereas in 1851 it was 29,000*l.*

7570. (*Chairman.*) For poor rates?—Yes. In 1841, there were 8,704 paupers relieved in the whole union, out of a population of 71,844 persons; whereas in 1851, 20,228 received parochial relief out of a population of 89,000.

7571. Will the increase of pauperism have been due to the irruption of Irish?—No; it was owing to a want of work among the working people.

7572. You think it was a pauperism not confined to the Irish immigrants, but also that there had been an increase of pauperism in the native population?—Yes; for this reason. Having paid some attention to it, I made application to a member of the board of guardians to ascertain the number of English, Irish, and Scotch receiving relief. They had no data whereby they could furnish that information; but some of the officers calculated it for a few weeks, and it turned out for about eleven weeks, that out of 100*l.* paid, there was 92*l.* odd paid to English, 6*l.* to Irish, and the remainder to Scotch.

7573. In what year was this?—In the year 1852.

7574. Ninety-two per cent. in 1852 was paid to English?—Yes, for the eleven weeks during which the calculation was made in our district. In ten years, from 1841 to 1851, the population increased two and a half per cent. annually, and pauperism increased thirteen per cent. annually; whereas crime only increased one and a quarter per cent. annually.

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7575. Do you think that in August 1853, a considerable proportion of the population that were so poor as to stand in need of parish relief were still the native population?—Yes, I do; we had certainly upon the books at one time, in the midst of the summer, about 6,000 who might be said to be the native population, on a single day.

7576. (*Mr. Bateman.*) Six thousand people of the native population at once receiving parochial relief?—Yes.

7577. (*Chairman.*) And how many Irish would there be?—I could not say that. For a long period they have been in the habit of sending the Irish away, or refusing them anything. They send them away, whole drafts together, to Liverpool, where they ship them off. They take them there and put them on board a vessel, and send them to Ireland.

7578. Do you know the poorer classes here?—I know them in Westgate, well. I have been a householder there for twenty-five years.

7579. Taking the Irish working population and the English working population, give us a notion of what the personal habits of those people are?—The English are far superior to the Irish, and so are the Scotch, in their personal habits about the houses.

7580. Taking 100 of the working men of the English or native population in Newcastle, and supposing them to be provided with decent houses, cleansed and put right to-day, with decent privy and ash-pit accommodation attached to them, and so on, so that they should have the opportunity of keeping themselves and their houses in a clean and wholesome condition; what do you think would be the state of those 100 houses, say a month hence?—I do not think you would find them so dirty as they are now. The general reason, which I presume is the cause, is that perhaps an Irish family or so come in, and refuse to clean; and the others will not submit to clean after them, and the premises get bad on account of that.

7581. Do you think the native population are inclined to keep themselves clean?—I do, because the complaint is continually made to me, as I go about the streets, of people not doing their part of the work.

7582. Do you ever hear these people complain of their privies and ash-pits being full?—Daily; they come to me daily.

7583. They feel the want of cleansing the conveniences which they have?—Yes; the inspector of nuisances can tell the number of complaints that I apprise him of from the inhabitants coming to me.

7584. You think that if you gave them the chance of keeping themselves clean, a considerable proportion of them, at all events, would avail themselves of it and would be clean?—I do.

7585. (*Mr. Bateman.*) You think the majority would do their best to keep themselves clean?—Yes, of the English people. It generally arises from one single individual coming where perhaps there are four or five tenants, and refusing to do his share; and the others do not like to clean after him.

7586. (*Mr. Town Clerk.*) And in consequence habits of uncleanliness are diffused among the whole?—Yes; some will leave the premises before they will submit to do it for the dirty people.

7587. (*Chairman.*) Is there any other point?—No, I did not come prepared with anything; I cannot think of anything.

Mr. T. Bryson.

Mr. Thomas Bryson further examined.

7588. (*Mr. Town Clerk.*) You have been a good while employed in the management of the sewers here under the town surveyor?—Ten years last June.

7589. (*Mr. Town Surveyor.*) The Commissioners are anxious to know about the state of the sewers. You have been through many of the sewers, I know, lately; and can speak of the principal main sewers of the town?—Yes.

7590. Will you state what sewers you have been through and what state you found them in?—I think at the request of one of the Commissioners I entered the sewers. The Commissioner wished to have that in Grainger Street, and that in Clayton Street examined. We entered on the 16th of February.

7591. (*Chairman.*) We have already got your evidence with reference to the Grainger Street and Clayton Street sewers, in the one of which you found the bottom torn up and in the other silted up?—I have not given this evidence yet. Since I gave that evidence I have again been in the sewer to which I am referring. I entered the man-hole in Clayton Street, on the west side of the Green Market, in company with Mr. Wallace the town surveyor, and a very experienced workman in sewers, Mr. Cherry. We commenced immediately to examine the sewers in Clayton Street. We went to the north end, as far as the drift has gone, to nearly opposite the southernmost entrance into the Green Market. Finding there a gully grate opening we returned, and examined carefully the house drain outlets into the sewer. There was a suggestion made by Mr. Simon that we should examine that particularly; we did so, and there was no house drain outlet there but one.

7592. (*Mr. Town Surveyor.*) Did you find it perfectly clean?—Perfectly clean, near the junction with Nuns Street; not in Clayton Street.

7593. (*Chairman.*) Do you say there was only one house drain from Clayton Street?—One house drain outlet.

(*Mr. Town Surveyor.*) There were several small drains, but there was one principal outlet from these many small drains into the sewer.

(*Mr. Bateman.*) There might have been many small branch drains, but the joint produce was conveyed by a single outlet into the main drain.

(*Mr. Bryson.*) There was only one outlet into the sewer near the junction with Nuns Street. Proceeding southward to near Newgate Street, we found a good number of house outlets on either side.

7594. (*Mr. Town Surveyor.*) Did you find them all clean also?—They were all clean, free, and in a good workable condition, and the sewer itself perfectly clean. We turned back and went down Nuns Street, all the way examining carefully the house drain outlets into the sewer. We found them thoroughly clean, every one of them.

7595. Did you find in the main sewer passing those two principal streets a good run of water?—A good run in Nuns Street.

7596. (*Chairman.*) Did you find any deposit in Nuns Street?—None whatever. There was especially one very important outlet in the centre of Nuns Street from a common privy in Nuns Lane, which was as clean as we could wish, of a cylinder shape; there was not the slightest soil there. Then we proceeded along Nuns Street into Grainger Street, near the south end of Grainger Street sewer, and then southward along Grainger Street to the termination of the sewer, where we found one or two outlets from gully grates. Returning back towards the north in Grainger Street, we proceeded to the head of Market Street, examining, as I said before, carefully all the outlets from houses or other branch drains, and we found them all in a clean workable condition; there was no soil whatever. We found the outlets in all these cases at generally about an altitude of one foot ten or two feet above the bottom of the sewer. Proceeding down to the head of Market Street, where the junction with the sewer coming out from under the Green Market takes place, we saw a considerable flushing power of water coming out from the market sewer. We turned in under the market, and found that there was a considerable fall of water coming from the transverse drains under the market down into a lower sewer in which we were, at the head of the Market Street, entering under the Butcher Market. Mr. Cherry went in under the fall of water.

7597. (*Mr. Town Surveyor.*) Is Mr. Cherry a man versed in these kind of things; is he a man that has had very much practice in them?—Very much so; we do not know a man of more experience and judgment in the neighbourhood. Finding such a flush of water coming there, we could only account for it by the fact that we have a public pant in the Green Market; that is on the west side of the market; and we have fountains there which are frequently playing, and a public convenience, I believe.

7598. Did you find a great run of water from the market?—A great run of water from the market into the head of Market Street sewer. We returned down from that again into Market Street sewer, and proceeded down to the foot of Market Street, near the junction with Grey Street; we examined that thoroughly, and found that there were house drain outlets from both sides of the sewer, both from that next the Central Exchange, and from the other. From there we descended the sewer under the High Bridge, down under the old market entrance sewer into Grey Street, at the foot of Grey Street, where the junction comes down a little below the Branch Bank of England. We examined it down to the foot.

7599. How did you find it?—We found a plentiful supply of water. In some parts near the High Bridge it would need some repair, owing to slight dilapidation.

7600. I suppose they were merely ordinary repairs which were wanted there?—Merely ordinary repairs, which could be soon done. When we came to the foot of Grey Street, we saw the outlets on either side in Moseley Street, both west and east, running clearly.

7601. Did they seem to be all clean as far as you could see?—Yes, perfectly.

7602. Water coming down both?—Water coming down both. We proceeded then down Dean Street. About half way down Dean Street there is an important outlet from a public privy in St. Nicholas's churchyard; we turned up that junction, and examined it very minutely, especially because upwards of two years ago we made a very great alteration both in the convenience itself, and also in its outlet into the sewer, and we were anxious to ascertain how that alteration had effected the object in view. We turned right up to the very bottom of the public convenience there; we examined it very minutely, and we found that all the soil was clean flushed off, and nothing remained.

7603. How often is that common privy flushed off in the course of the day?—Twice a day, or more if we think it necessary.

7604. You can speak to a certainty of twice a day?—Yes.

7605. The drain from it into the Dean Street sewer was perfectly clean?—Perfectly clean, with no soil retained or remaining.

7606. Did you examine the branch sewers in Dean Street?—Yes.

7607. How did you find the whole of them?—The whole of them were clear; it cannot be otherwise; the outlets into the sewer cannot be obstructed in any way; if there is any silting up, it must be in the branches where we could not see.

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7608. As far as you could see them they were clear?—Yes. Then we proceeded down Dean Street to the junction with the Side. We found that there was a nice run of water from the Side, coming from the west side into Dean Street. Going down the Side we examined the drain outlets all the way along till we came to the bottom of the Butcher Bank, which drains Pilgrim Street all the way up, and Northumberland Street. We found all that outlet free and clear. We proceeded downward, down the Sand Hill, to the river here, where there is a junction with another old sewer, formerly in use, but which I believe had been altered before I had any connection with it.

7609. You found it perfectly right?—Yes, and I am quite certain that it is right at the present moment, in the very same way as we found it then. You will notice, too, that there is an old sewer at the bottom of the Side, running down the Sand Hill into the river. The houses adjoining the north side of the Sand Hill are nearly all drained into the old sewer. There are one or two exceptions; there is a house which did belong to Mr. Temple drained into the new sewer, but almost all of them are drained into the old sewer there. The new one has never been blown up, and never been full.

7610. The old one is only two-fifths of the capacity of the new one?—Yes. Then we retraced our steps, and took the very same route as we had descended all the way up. We went up into Grainger Street; that part in particular which the Commissioner wished us to examine; at the north end, just at the junction with the sewer coming out of Nelson Street, we examined in particular if there were any house drain outlets from the Central Exchange.

7611. Into the Grainger Street sewer?—Yes, towards the north end; we found that there was no drain outlet from that side next the Exchange into the Grainger Street sewer.

7612. (*Mr. Bateman.*) The outlet from the Central Exchange is into Grey Street?—There are outlets into Grey Street, but there are also outlets into Market Street from the Central Exchange.

7613. None into Grainger Street?—None into Grainger Street.

7614. (*Chairman.*) Is this the place where you found the bottom torn up?—Some of these flags had been turned up from the following cause, as we think, after more deliberate reflection about it: we were letting off large reservoirs of water up at the Gallowgate coal metal seam, where there is an immense quantity of water.

7615. Have they been relaid since the time when you examined them on the 16th of February?—We have got them out, but not relaid them yet. We have turned the water for the purpose of relaying or improving the bottom, if possible, from a flat shape to a concave form. That was the spot which Mr. Simon wanted us to examine, more particularly in relation to the death of Mr. Scott, the tailor, on that side of the Exchange. We took the greatest pains possible to examine it. We found that there was no outlet there; then we proceeded on up Nelson Street, where we found a good flush of water coming through from Blackett Street, under St. James's chapel down into Nelson Street, not far from the end of Nelson Street, into Grainger Street; that was perfectly free and clear.

7616. (*Mr. Town Surveyor.*) Was Mr. Cherry with you that night?—Mr. Cherry was up as far he could get. It gets smaller.

7617. Was it all clear?—It was all clear as far as he could go, and as far as he could see up. Then we proceeded onward from that up Nelson Street, where there is another important outlet from a public privy in the Green Market. We found that also all clear and clean.

7618. You found no soil about the mouth of the drain?—No soil about the mouth of that outlet from the Green Market public privy. From that we proceeded up under Green Court, crossing Newgate Street, as far up Darn Crook to where we find the inclination very much increased, and a rapid run of water, so that we considered it quite unnecessary to go any further. We then returned down Nelson Street, under Newgate Street and Green Court, along Grainger Street, up Nuns Street to the same outlet at which we entered in Clayton Street, west of the Green Market, after being in exploring and examining upwards of four hours. That is the first night's excursion.

7619. (*Chairman.*) What was the last time that you were in these same sewers before the 16th of February?—I think I was in Dean Street perhaps just a little before the cholera. I do not think I was in it from the time of the epidemic till the time that we now allude to.

7620. Taking such streets as Nuns Street and Nelson Street and Grainger Street, what state were they in the last time you saw them before the cholera?—At the time I was in, except a comparatively slight silting, they were all free. A silting up at the bottom I mean.

7621. (*Mr. Bateman.*) A slight deposit?—A slight deposit. They are made with a concave bottom formed with brick.

7622. (*Chairman.*) What do you think was the amount of the deposit at the time of the Cholera in Nuns Street, or Nelson Street, or Grainger Street. I take these streets because I suppose them to be just about the best in the town?—I could not say. I think Grainger Street sewer was perfectly free. Even when these bottoms were turned up, to which I alluded when I was first sent in, there was very little silting up. There was a good flush of water; but a bottom or two turned up.

7623. In Grainger Street there was a ponding up of sewage water?—Yes.

7624. (*Mr. Town Surveyor.*) What do you think was the reason of that?—We think it was from the letting off of such an immense quantity of water from the reservoirs at the very time when the snow storm was dissolving, in the middle of December.

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7625. Are not you aware that at that part where the stone was torn up there was a very old sewer, a part of the old Dean which Mr. Grainger had not remodelled?—I think for a very short space, evidently from the mode of construction and the stones, it had the appearance of an old sewer in that particular part of Grainger Street.

7626. Do you think that that was the particular cause of the silting up?—In that part no doubt.

7627. When was the next night's excursion?—This was on the Thursday the 16th of February. The next excursion was on the Monday following. This I would remind the Commissioners is a personal inspection; such as is perhaps not exactly what Mr. Lee referred to, when he said that he had made a personal inspection of some of the sewers. This is really an actual personal inspection of them.

7628. (*Mr. Town Clerk.*) Mr. Lee did not take a walk through the sewers as you have done?—No. He could not be there without my knowledge. He was never in them at all, although he said so.

7629. (*Chairman.*) I must correct you there. Mr. Lee did not say, at least as I understood him, that he had ever been in any of them; but that he had "looked into "and inspected" some; an answer further explained by the answer immediately following it, in which he refers to "sewers that were formerly deans or brooks, now partly open "and partly covered?"—Certainly, the minute says he looked in and saw them. I am now at the Monday night the 20th of February. We entered the sewer in Clayton Street, the west or south-west side of Westgate Street. From that we proceeded northward in Clayton Street, to the junction in Westgate Street, where that silting up was. *Vide Q.* 306, 307, *ante.*

7630. You gave us the evidence upon that the other day?—Yes. We went on in Clayton Street to the end of Fenkle Street, and northwards towards the Clayton Arms on to the head of the sewer near Newgate Street, but it has no continuation up under Newgate Street. We returned back again along the sewer. It was partly silted up from the cause which was spoken of on a previous examination. Passing on we went along examining Clayton Street to the south-west, and all the house drain outlets, and found every one of these house drain outlets free and clear.

7631. (*Mr. Town Surveyor.*) What run of water did you find in the Clayton Street sewer after coming down by Westgate Street?—There was a good run of water in the south-west part of Clayton-street, when you are on the south-west side of Westgate Street junction. The flow of water was pretty rapid, especially when you go southward under the Cattle Market to where we come to the junction formed with that relieving sewer to which Mr. Lee alludes.

7632. (*Mr. Bateman.*) I suppose Mr. Lee correctly described the shape?—Most decidedly. We have no objection to that.

7633. (*Mr. Town Surveyor.*) What condition did you find it in?—Thoroughly good.

7634. Was there any silting at all in it?—Not the slightest.

7635. (*Mr. Town Clerk.*) Is the descent rapid in that part?—The descent in that relieving part of the sewer which Mr. Lee saw when he was here is one in seventy-two.

7636. An egg shape, with a flat bottom, you think, in that situation, would do very well?—The best possible.

7637. (*Mr. Town Surveyor.*) You did not think that it was a bad shape for the purpose that it is applied to there?—I know it is not a bad shape.

7638. (*Mr. Town Clerk.*) From your practice and experience, your opinion is adverse to that of Mr. Lee upon the point?—I am quite prepared to illustrate the thing. In fact, we have ocular demonstration from half a year's trial that it is the best possible. I will show you the section. I should first wish to refer you to the circumstance of this relieving sewer being adopted at all. This is the sewer before we made any alteration (*producing a plan*). This is Churchill Street and this is Marlborough Crescent. This is the house of Mr. Richardson, who gave evidence, I think, before the Commissioners, that his house was inundated or flooded with water so frequently. This is his branch drain; and he annoyed, I believe, the Town Improvement committee in seeking redress. I do not know how often, but very frequently for some years; and I know that they were willing to do all they could to relieve him. We altered this surface at one time, and still he considered that we had not given him relief. This is the fall of this house into the sewer (*showing the same*).

7639. (*Mr. Bateman.*) One foot four?—Yes. This is the other, from the other house.

7640. Two feet six?—Yes.

7641. You found Mr. Richardson's house liable to be inundated by water?—Decidedly.

7642. There was an old circuitous sewer there?—Yes.

7643. With a narrow bottom, probably?—Not a narrow bottom.

7644. But which sometimes, when filled with water, would dam up, and fill his cellar?—(*Mr. Bryson.*) Especially from the circumstance of these sewers coming all together, there being a junction at that place.

7645. (*Mr. Bateman to Mr. Town Surveyor.*) In order to relieve it, and to keep the water as low as possible in times of flood, when a large quantity is going down, you made a short cut?—Clearly so.

7646. With a flat bottom, to give as much area to the water at the bottom of the sewer as possible?—Yes, that is the reason why we made it that peculiar form.

(*Mr. Bryson.*) In every respect, that was the best shape that could be adopted under the circumstances.

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7647. (*To Mr. Bryson.*) You did not apprehend any difficulty or any evil effect from a flat bottom there, in consequence of there being a considerable run of tolerably clear water and a tolerably rapid declivity there?—A great declivity, and nearly always clear; sometimes a little turbid in a great stream of water, but it certainly answers every purpose that we wanted.

7649. And in the night of your second excursion you found it sweet and clean?—Quite so; and we know at this present moment that it is so, and at any time in half an hour we could examine it. We have a man-hole just above it, and could expose it at any time; so that we have a proof at command at half an hour's notice, at any time.

7650. (*Mr. Town Clerk.*) Did you attend Mr. Lee during his examination of the sewers?—No.

7651. As to the actual inspection of the sewers, was Mr. Lee in any of the sewers?—None.

7652. That is not your general form of sewer?—It is not our general form, although we have adopted a similar form in other places.

7653. For similar reasons?—For similar reasons. We have a great many sections to show the uniform system that we now use, although Mr. Lee thinks we have no system.

7654. In that you differ?—We differ *in toto*. I think Mr. Lee should have asked if we had any reasons for what we had done there before giving that evidence.

7655. (*Mr. Town Clerk to Mr. John Cherry.*) You accompanied Mr. Bryson on his visit to these places which he has been describing?—Yes.

7656. You have had some experience in those matters?—I have.

7657. You have heard what Mr. Bryson has said; is it all correct?—I cannot make any better of it, I think, to speak the truth.

7658. You have no connection with the corporation; you are not a corporation officer?—No; I am employed as a workman by them.

7659. Occasionally?—At present.

(*Mr Bryson.*) I have not yet finished my account. We left the sewer said to be of so bad a form, and descended the infirmary sewer, where we found a strong flush of water coming from a branch drain adjoining the infirmary. After we left that, there were no more branch outlets into the sewer; but a good sewer it was, all the way down to where it crosses underneath the Carlisle railway arches. There it divides itself into two sewers. We went all the way down one of these, and found the sewer perfectly clean and free from obstruction, right down to Skinner burn into the river. That was our route, and we returned again the same way, all up Clayton Street up the same outlet or man-hole in Clayton Street, after I think about three hours and a half pleasurable excursion.

7660. (*Mr. Bateman.*) Have you put to sea again since then?—Not since then; Mr. Cherry has, I know, and certain others.

7661. (*To Mr. Cherry.*) How did you find the other sewers which you have gone into since this journey with Mr. Bryson?—All the sewers that I have been in are perfectly clean at present.

7662. In what part of the town have you been since that?—I have been again in all the sewers that he has mentioned.

7663. They are in the same condition?—They are nearly in the same condition that they were at that time. In Clayton Street all the sediment coming down was not taken away on the night that Mr. Bryson was in, but I have been in with some other men since that time, and it has been taken away; and now the water runs bare upon the bottom free from any sediment at all.

7664. You have nothing to add to what Mr. Bryson has stated, except that that has been removed, and that the sewer is now clean?—Just so.

7665. (*Mr. Bryson.*) Mr. Cherry has been in the sewer in Grey Street, along Shakespeare Street, Market Street, and Hood Street?—Yes.

7666. (*Chairman to Mr. Bryson.*) In the winter and in the spring you have a considerable amount of rain, have you not, coming down your sewers and flushing them?—Most undoubtedly.

7667. Last year was an unusually dry year in the summer, was it not?—Part of the summer I think it was; certainly towards the end of the summer it was not.

7668. At that time you will have had comparatively much less water passing down your sewers than in December, January, and up to the 16th of February last?—It is quite possible there might be less; I do not doubt that there might be less.

7669. Do you doubt that it was very much less?—We have a continual run, whether it is wet weather or dry weather.

7670. Of course even the quantity of that continual run varies?—It varies with the state of the weather.

7671. And you do not doubt that in the months of July, August, and September last you had an infinitely less quantity of water running down and flushing your sewers than you had in last December, January, and the first half of February?—Not an infinitely less quantity, but we might have less.

7672. (*Mr. Bateman.*) Considerably less?—Considerably less.

7673. (*Chairman.*) Therefore having less water to flush your sewers at the time to which our inquiry is directed, do you doubt that they might have been in a very much worse condition then than that in which you found them on the 16th and 20th of February last?—I think it might be worse.

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7674. We know of course that it might have been so, but do you yourself doubt that it was worse, and very considerably worse?—I think it might be worse; I cannot say to what extent.

7675. (*Mr. Bateman.*) Do not you think it would be worse?—I think it might.

7676. (*Chairman.*) Of course we all of us know that the state of your sewers might possibly have been infinitely worse in July, August, and September 1853 than in January and February 1854, but we wish to know whether you cannot go beyond the assertion that that was possible?—The word "infinitely" is too strong a term; had you said "greatly" I would have assented.

7677. I will say "greatly worse" then?—Had you said "considerably" I would have assented.

7678. You agree that owing to the difference which you would have with respect to your natural flushing powers, the state of the sewers will have been greatly or considerably worse in the cholera time than now?—Yes, that is reasonable.

7679. (*Mr. Town Clerk.*) You heard yesterday the description by Mr. Shipley of the state of the streets at the Shield Field?—Yes.

7680. He first complained that they were not paved?—Yes.

7681. And then that they were not visited by scavengers?—Just so; it is correct.

7682. Can you tell us how that happens?—They are streets which are just now progressing.

7683. They are a speculation of builders?—Entirely of builders; Wesley Terrace I am speaking of.

7684. Do you think it is the duty of a building speculator to make a street, or of the town for him?—It is his duty, I believe; and there is one reason I might assign. The people in Wesley Terrace have applied to me telling me that they could not get any workmen or material to pave the streets, and they have told me latterly that if I find them workmen and paving they are willing to pay for it. We have almost as great a difficulty as they have; we have not a great many paviours in the town, and stone has been bad to get of late on account of the shipping being so well employed.

7685. With respect to the scavenging of those streets what have you to state?—We cannot scavenge them; they are just full of refuse from the builders who are working there and from the ashes laid down. It is a work of some time before a large town like this where many streets are building can be put in a proper state fit for scavenging; it is a work of time before all those things can be done.

7686. Have you got some analyses made of the drinking waters of the town?—I have.

7687. Look at the analysis marked D; what water is that; it was sent anonymously to the operator?—The vicar's pump.

7688. Will you be good enough to put that document in?—(*The witness delivered in the same*).

(*Mr. Town Clerk.*) That which is the softest and purest water in the country is, according to the scientific testimony, not fit to be drunk.

7689. (*Mr. Bateman.*) You think that the analysis cannot be right?—(*Mr. Town Clerk.*) It is utterly impossible. I cannot place the slightest faith in it. I was born within 100 yards of the vicar's pump. I have drunk the water all my life, and it is the purest and softest spring water that I ever tasted, and I cannot drink water in a limestone country at all.

The following is the document alluded to:

Newcastle-upon-Tyne, March 20th, 1854.

AN ANALYSIS (of an Imperial Gallon) of different SPRING WATERS, by RICHARDSON and BROWELL.

Spital Water, Westgate Street, near the Central Railway Station - -	Carbonate of lime and magnesia, precipitated by boiling -	24·42
	Sulphate of lime - - - - - -	27·00
	Soluble salts of earth and alkali - - - -	22·68
	Grains	74·00
	A considerable quantity of organic matter.	

	Near the Gaol. Manors.	Percy Street. Hay Market.	Dobson's. New Bridge Street.
Matter precipitated by boiling, chiefly carbonate of lime - - - - -	14·48	20·80	9·80
Sulphate of lime - - - - -	133·84	46·72	23·12
Soluble salts of the earths and alkalies -	12·08	32·48	39·08
Grains	160·40	100·00	72·00

Mr. T. Bryson.

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These waters all contain traces of organic matter. The Hay-Market water appears free from nitrates; but that from the Manors is so loaded with this salt that the red fumes of hyponitrous acid are evolved on heating the dry residue. Mr. Dobson's water also contains some nitrate, but not to the same extent. The three waters are all very hard, and owe their hardness principally to the most objectionable of all salts, the sulphate of lime

	A — Spital Tongues.	B — North Elswick.	C — St. Thomas' Terrace.	D — Vicar's Pump.	C' — Fighting Cocks Pant.	D' — Vicar's Pump.
Carbonate of lime, &c. - -	5·48	1·00	16·36	25·20	2·50	24·00
Sulphate of lime - - -	20·59	26·56	39·03	36·42	29·87	47·79
Soluble salts of the earths and alkalies	9·93	22·44	22·21	40·78	16.63	32·21
Grains	36·00	50·00	77·60	92·40	49·00	104·00

The waters marked C and D contain a large proportion of organic matter, from which D' was nearly free; the other samples all contain some, but not more than usually exist in all waters. The samples marked B and C indicate the presence of a considerable quantity of nitrate, evolving red fumes when heated. C' and D' also contain traces, as indicated by the indigo test. These are all hard waters.

Mr. J. Walker.

MR. JOHN WALKER examined.

7690. (*Mr. Town Surveyor.*) I believe you have a good deal of property about Sandgate?—Yes, my brother and I have.

7691. Will you give the Commissioners a short account of that property; how it is situated, and what has occurred in it during the epidemic?—We have only had three deaths from cholera in all our tenements.

7692. (*Chairman.*) What parts of Sandgate belong to you?—My brother and I have nearly three whole entries.

7693. What are the names of the entries?—Part of Nimmo's Entry, on the south side, Boar Entry, on the north side, and most part of Wood Entry on the north side also.

7694. (*Mr. Town Surveyor.*) They are about the middle of Sandgate?—Yes, past the Swirle.

7695. (*Chairman.*) In these three entries how many houses have you got?—I think my brother and I have about fifty-two tenants altogether, when all are occupied.

7696. Fifty-two families?—Yes, say upwards of 200 people.

7697. Those 200 people had only three deaths among them?—Only three deaths, and one of them was the very cleanest person of the whole; many times I have pointed her out as an example to the whole of the tenants.

7698. Do you think her cleanliness killed her?—No, I do not think that; she was a tender body, poor thing.

7699. Are you sure she died of cholera at all?—I cannot say, for I was not at home at the time; the neighbours, being Irish, and she Irish herself, fled from her when she was taken ill, and the poor woman may have died from the want of regular assistance; she was a remarkably clean woman. I think we might brave the whole town for healthiness in Sandgate. I was born in Sandgate, and my ancestors all lived there, and were brought up there, and they lived to an old age; and another thing I can tell you, that out of the families of the tenants that we have, I will take twenty children, and I will present them to any other twenty in the town, and if they do not beat them for health I will forfeit my existence.

7700. (*Mr. Bateman.*) You rather put Sandgate forward as being a sample of what a town ought to be?—There are so many lanes, and at every flood-tide the wind comes up. It is not, certainly, a respectable place, but as far as health goes I should not care to live my life there over again.

7701. Have you lived there all your life?—All my life. I am upon the New Road now.

7702. (*Mr. Town Clerk.*) Just behind it?—Just behind it; it is next door you may say. All my forefathers were brought up there.

7703. You are attached to Sandgate?—Yes. There is no doubt that there is a deal of Irish in it now; that it is rather different from what it was when I was a young man.

7704. It was more select when you were a young man?—Yes.

7705. (*Chairman.*) Is there any other point which you would like to speak to?—I can speak to no other point. I think within the last year or two there has been a great improvement in the cleanliness of Sandgate; the corporation have flagged the north side, and that has made a great improvement.

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7706. (*Mr. Town Clerk.*) The corporation have pulled down a good deal of it, have they not?—Yes, towards the river.

7707. (*Chairman to Mr. Town Surveyor.*) How many houses have you pulled down in Sandgate since the corporation became possessed of any property there?—The plan will show it.

7708. Will you reckon up the number of houses that have been pulled down by the corporation at any time since they became possessed of any property there?—I will.

The following statement was afterwards handed in.

"Newcastle-upon-Tyne,
"Town Surveyor's Office, 20th March, 1854.

"The corporation of Newcastle since first they purchased property in Sandgate, about the year 1839, have pulled down thirty distinct buildings, several of which were occupied by two, three, and four families each.

"ROBT. WALLACE, Town Surveyor."

(*Mr. Walker.*) The corporation have certainly done a great deal of good to the place.

7709. (*Chairman.*) We know that they have done so in times of epidemic; but have you known them do it in the interval between those times?—Yes.

7710. How many times?—I think they did almost all the lanes, that were thoroughfares, from street to street. There are some where the lane does not go all the way up; then they consider that private property, and the proprietors have had to do it themselves. I have had to do mine myself on one side.

7711. Of course it is a great advantage to keep the places clean?—Yes; for my part I pay one of the tenants so much a week to keep the yards clean, and have done for these four or five years, which makes a great change in that property now.

7712. (*Mr. Town Clerk.*) You have been fortunate in your tenantry; you have only lost three?—Yes, I have been very fortunate, having such a number of them.

7713. (*Chairman.*) Have you any further point to speak upon?—None, unless you put any questions to me.

J. Clayton, Esq.

JOHN CLAYTON, ESQ., further examined.

Mr. Clayton delivered in the following paper.

ACCOUNT of Sums raised under the Sewers Rate and expended in making New Sewers.

	£	s.	d.
1849	336	0	0
1850	1,268	1	4
1851	1,306	19	8
1859	1,413	7	11
1853	1,578	15	6
Total of five years	5,903	4	5

(*Mr. Clayton.*) Up to the year 1849, everything that was expended in respect of sewers was expended out of the private funds of the corporation.

7714. (*Chairman.*) Then you got a Local Improvement Act, authorising you to levy sewer rates?—Before 1849, because we made the first rate in 1848, and began to collect in 1849; the Act of 1846 would give us the power.

7715. In the five years, from 1849 to 1853, you levied sewer rates amounting to the sum mentioned in this paper, and also expended them?—Yes; there would be some excess of expenditure, but that we have no account of.

7716. But generally you expended the amount here given?—Yes.

7717. (*Mr. Bateman.*) You do not recover any of this from the private owners?—No; we keep a separate account when we deal with a private owner.

7718. In addition to the 1,100*l.* or 1,200*l.* a year which you seem to have spent in making public sewers, have you spent anything in making private sewers, which you have been repaid by the owners of the property?—Yes; several hundred pounds, not in private sewers, but in sewers made under the Act at the expense of individuals. I should think not any considerable sum.

7719. (*Chairman.*) Say 1,000*l.*?—I should think that would cover it.

(*Mr. Clayton.*) I will now detain you but a very short time in making a few observations on the evidence, and in dealing with the charges which have arisen against the council or the governing body of the corporation during this inquiry. We will take the last subject which we have discussed first, the sewerage of the town. On the evidence of Mr. Lee, he having so little means of information, I shall not make any comment. On the evidence of Mr. Rawlinson I shall say a few words. Mr. Rawlinson I believe to be a very competent judge; I believe him to be a very fair and honourable man, and that he wished to give a fair account of what he had seen. Mr. Rawlinson says: "For the "extent of area and the population of Newcastle, I think I could safely say that in "Newcastle I found that more money had been expended upon sewers than in any town "where I have ever been." Upon being asked whether he thought it judiciously

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expended, he says: "It had never entered into any person's mind to set out with a comprehensive system." In a town that is built by degrees, you cannot perceive what it is to be; you cannot set out with a comprehensive system, "and therefore," (continues Mr. Rawlinson, "the sewering had been a system of patch-work, and had arisen upon "the necessity of the case. I believe that the new part of Newcastle is sewered as well "as the knowledge of that day enabled the parties to do it." He says, "In no town "where I have inquired, that I can recall to my recollection, did I find that so much "money had been expended upon sewers as in Newcastle." Then, on the subject of the branch drains, he says, "In Birmingham, for instance, I found that the largest "houses in the best parts of the town had no means of getting rid of the water-closet "refuse but by passing it out on to the gutter by the side of the highway. Houses letting "for 150*l.* and 200*l.* a year were drained in that manner." Then he concludes, "A far "greater extent of sewerage had been done in Newcastle, taking population for popula-"tion, than had been done, I believe, in Birmingham, or any other place which I have "inspected." You have heard the practical working of the sewerage of Newcastle as described by the witnesses; it is not so symmetrical as it would have been if it had been done all at once, and done by a man of Mr. Rawlinson's science, but for all practical purposes I do not believe that we can improve it. I will not waste more words on this subject because I know that you have associated with you a gentleman who perfectly understands the subject. Upon his judgment and upon his decision I shall confidently rely. The next point to which I shall allude, which has been advanced in the way of charge against the corporation, is the subject of paving and of flagging. With respect to the flaggings of all the best parts of the town, I am sure that they need not shrink from competition with the streets of London; that they are as well constructed, and in many cases of much better materials than the flaggings of the streets of London. With respect to the macadamising of streets, I think a great error has been committed, and that wherever you macadamise a street, you prepare a repository of mud, and that you cannot keep the streets clean; you cannot keep the footways clean where the streets are macadamised. We have fallen into that error; they have fallen into it in London. Both towns, I believe, will correct that error and will revert to the ancient system of paving, adopting the best method. With respect to the scavenging of the streets, I believe the corporation have done as much as they could possibly do. They have exerted themselves as far as their means allowed them. Combined with this subject is the cleansing of the middens and ash-pits. I do not think any system will be complete until the whole of the duty of cleaning the middens and ash-pits is taken by the town at large. That is not the practice in the towns of this kingdom generally; Manchester, perhaps, is the only exception. You cannot get the party himself to clean his ash-pit and his midden sufficiently frequently, if he has to do it at his own expense. In Manchester they have adopted the practice of doing it at the expense of the town at large. Here it would occasion an addition to the cost, and might occasion some discontent on the part of the inhabitants; but until that system is adopted, I am quite satisfied that no satisfactory result can be obtained. No powers that we possess under our Acts will secure the town against accumulations in middens and ash-pits in private repositories. We have, as we have shown by the financial statement delivered, applied for the purposes of the streets annually considerable funds from the corporate property. Without an additional charge of 3,000*l.* or 4,000*l.* a year we cannot follow the example of Manchester, and carry out a proper system of cleaning middens and ash-pits. We have no power of making a rate for that purpose, but still it may be effected, because for other purposes, which purposes we at present aid by the application of the general revenue of the corporation property, we may make a further rate. By so doing we shall set at liberty funds of the corporation applicable to meet the increased charge alluded to, and if the inhabitants are willing to submit to a further rate, we shall be able to give in effect perfect cleanliness in those respects. We have been accused of neglect of public privies. We have delivered in a plan, showing where our public privies are, and I venture to say, having looked at other places, that you will not find that any part even of London itself is more plentifully supplied with public privies. We are accused of not having exercised the powers we possess of cleansing filthy and unwholesome dwellings. Now these powers are always considered arbitrary; people do not like their private arrangements to be interfered with, and, generally speaking, it is the duty of the occupier or the owner of a house to keep it clean himself. If the authorities interfere to clean houses at all, it will be in the case of inhabitants of very uncleanly habits, and I do not think the effect of their good work in cleansing would last for any length of time. We have no doubt, as you have in all large towns, many streets, alleys, and courts, which are not in a satisfactory state, and which cannot be put in a satisfactory state, so far as regards sanitary considerations. You find the same in London, you find the same in Edinburgh, in Glasgow, and Liverpool. I venture to say that, in any of those towns, I can take you into worse places than Sandgate or Pandon, Clogger's Entry, or the Mill Entry; and those places in other towns have not the prospect of being removed as Sandgate has, and as the Mill Entry has. The corporation have, for many years, been wisely pursuing the system of acquiring gradually that property in Sandgate by the side of the river, with the object of finally removing the present buildings and their occupants, and applying the property to commercial purposes. The Mill Entry is in the way of the approach to the High Level Bridge, and is

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also likely to be demolished at no distant time; and the owner of Clogger's Entry, who has shown so laudable a disposition to support the character of his property, will have an opportunity of improving that character, as it will very soon stand by the side of a principal approach to the town. The corporation are charged with having neglected to make byelaws for the regulation of slaughter-houses. Now I think I may venture to say that you have scarcely had before you the complaint of a nuisance occasioned by a slaughter-house, and that the slaughter-houses in Newcastle are generally well conducted, and occasion as little annoyance to the public as institutions of that sort necessarily must. We are also accused of having omitted to make byelaws for the regulation of common lodging-houses. I do not know that we could have done very much more good than we have by any byelaws which we could have made, because the difficulty arises from the definition of the word "common lodging-house." The regular and registered lodging-house is not the building which occasions the greatest mischief; it is the lodging-house which you cannot prove to be a common lodging-house within the meaning of the Act, for example a house inhabited by an Irish family, that does the mischief. They receive all of the same country; you have no means of showing that they receive any payment for so doing; and if the police go to them, their lodgers are their aunts, their uncles, their cousins, or their brothers or sisters. We attempted in our last Town Improvement Act to get inserted a definition of the word "common lodging-house," which would have enabled us to cure this mischief; but Lord Redesdale, who very properly exercises a very rigid superintendence of local legislation, objected to it. He said, "It is quite right that it should be defined, but it is quite wrong that the law of "Newcastle should be different from the general law of the country. The legislature "ought to pass an Act generally for that purpose; but I cannot let you have a common "lodging-house in Newcastle which is not a common lodging-house elsewhere." We are also accused of having neglected to carry into effect the powers which we had to compel the consumption of smoke. We have had a defective power for some years, which was obtained with some difficulty by the council of that day, a difficulty amongst themselves; but which power we found still greater difficulty in putting in force. At that time many people believed that smoke could not be consumed. We had not had the experience of Manchester, and the clause was in other respects defective, and we were not able to act upon it. In the last session we obtained, I think, a complete clause, and I had the pleasure to see that Lord Redesdale in the House of Lords complimented the town for not having asked to exempt even glass-houses from its operation. The council resolved that the best that can be done should be done with every sort of manufactory that produced smoke. The corporation are blamed for the state of the gas of the town. We heard, I think, the chairman of that company describe his gas as of a very brilliant character, as gas which was not deficient in light or in any other property that ought to belong to gas. The council certainly had an impression that the gas might be brighter and that the town might be lighter than it was; and in the year 1846 we got an Act of Parliament to enable the corporation to purchase the gas works and supply the town with gas themselves. In taking that measure the town followed the example of Manchester; we found the corporation of Manchester in possession of the gas works of the town, supplying the town plentifully with light, and also improving the coffers of the borough. The finance committee of the corporation proceeded, having obtained that Act, to negotiate with the gas company. They agreed upon the terms of purchase of the existing works, and they recommended those terms to the confirmation of the council, and they put the report upon the subject before the council of the 11th of June 1851. At that period a great clamour out of doors was got up. It was insinuated that the council were sacrificing the interests of the town to the interests of the gas company; that they were going to pay too much for the works, and the recommendation of the finance committee was negatived in the council. I believe the council were influenced, not by their own judgment, but by the feelings of their constituents, by which those who voted against the measure felt themselves bound. At that time we were obliged to give up the purchase, and the gas works remained in the hands of the existing company. The state of the water supply has also been made an item of blame against the corporation, though the evidence, I think, shows pretty clearly that they could do nothing with it. It certainly would have been better, and it certainly is a sound principle, that the supply of water should be in the hands of the town; that the supply should be paid for by a rate upon the whole of the town, and that each house should be supplied with water. That system, under the able direction of Mr. Bateman, your colleague, is now in operation at Manchester, and is, I think, most beneficial, and the only course which will ever give entire satisfaction in the supply of water. We are not, I am afraid, here in a state in which that system will be easily adopted, inasmuch as the supply of water here is in the hands of a company who have expended a very large capital. Two water establishments, duplicate pipes and duplicate works, would scarcely tend to cheapen the supply, and, therefore, unless at a future time the town should buy up the works of the existing company, the works for the supply of water cannot be in the hands of the town. I do not wish to say anything to the prejudice of the existing company. I believe that they have produced a vast improvement in the supply of water to this town. My late friend Mr. Alderman Potter, who had, I believe, the most benevolent feelings and the greatest consideration for the poor of any man within my knowledge, took a very leading part in the formation of that company, I believe from

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benevolent motives. He was removed before the occurrences of last year, otherwise I am quite sure he would have deeply felt the imputation that the company had in any degree, by resorting to the supply of water from the Tyne, aggravated the malady with which we have been afflicted. In resorting to the Tyne, it ought to be stated that the company merely followed an example which had been set in the year 1834, when an Act was passed for establishing a water company, which Act contained a clause that no water should be supplied by that company but the Tyne water. It is, perhaps, not generally known what is the history of that clause. The company established by that Act of Parliament constituted at that day an innovation. There had been an ancient company established in the year 1698, which had supplied the town with spring water up to that time. The rival company were resisted by that company, who relied on their vested rights, founded upon an Act of Parliament of the date of William the Third, in the springs around the town; and therefore they obtained the insertion in the Act of Parliament of the new company of a clause prohibiting their resorting to anything else but the Tyne. The old company thought they had secured their position, that the new company had got so bad a material that they would beat them in competition. They entered into that competition, and they stood it for a year. Proper filter-beds were established by the new company, and they were then fresh and in full operation, and it was found that the Tyne water was so much softer than any water which could be got from the springs around, that it was preferred by the consumers; and the old company, who relied upon the springs were beaten out of the field. The Tyne water continued to be supplied to the inhabitants till the Whittle Dean water company was established under the circumstances which I have stated. The water that we supply from the pants and pumps in the town has been a good deal libelled by the scientific analysis, not I think in any other way; practically I have given evidence against that analysis, and I feel confident that we have in the town the means of supplying ourselves with very good spring water for drinking. The Whittle Dean water, unmixed with the water of the Tyne, has been found to be very good drinking water, and probably the Whittle Dean company will be able for the future to secure a supply sufficient to enable them to go on without resorting again to the water of the Tyne. The scale of mortality of Newcastle has been represented to be much greater in proportion than that of other districts. I have taken a little pains to investigate the matter. Mr. Lee, I must say not very fairly, attempted to compare us with the districts of Haltwhistle and Bellingham, two entirely pastoral districts. Haltwhistle, he said, was also a mineral district. I happen to be pretty well acquainted with it. There are two or three land slate collieries worked by gins, and I believe but one steam-engine in the whole parish. In the parish of Bellingham I do not believe there is any steam engine. These are quite pastoral districts, and there is no comparison whatever between them and Newcastle. The comparison between us and Tynemouth, and between us and Gateshead, is not either fair. Our district comprises purely the borough population. Those districts, Tynemouth and Gateshead, comprise a great rural population, and of course the rate of mortality is much less in a rural population than in a town population. I have had a statement prepared from the Registrar General's returns, showing the rate of mortality in 1849, 1850, 1851, and 1852, comparing Newcastle with Liverpool and West Derby, with Manchester, Salford, and Chorlton, with Leeds, and with Hull. Liverpool and West Derby, and the Manchester district both include a considerable rural population, and yet I find that in 1849, Newcastle was twenty-eight per 1,000, Liverpool forty-three per 1,000, Manchester thirty-three, Leeds forty-two, and Hull fifty-four; so that Newcastle was much superior to all those places. I find that in 1850 Newcastle was reduced to twenty-three and four-tenths, Liverpool was twenty-six, Manchester was twenty-eight, Leeds was twenty-four, Hull was twenty-six; Newcastle was still the best of all. I find that in 1851, Newcastle was twenty-six, Liverpool was thirty, Manchester was twenty-nine, Leeds was thirty-one, and Hull was twenty-six. I shall leave this paper with you; there is only one more observation upon it that I shall make, and that is on a table given at page eighty of the Registrar General's 12th annual report of the mortality in some of the great cholera fields of England, on the sea coast and navigable rivers, and I find Newcastle contrasted with others. Out of twenty-three towns there are only three towns in which the mortality is less than in Newcastle.

7720. Those five towns, Newcastle, Liverpool, Manchester, Leeds, and Hull you would consider as affording a fair parallel?—Yes; save that I believe in all those towns there is included a larger rural district. We have no rural district at all. I should say that Glasgow was a very fair town to compare us with; but notwithstanding that, I find that we are superior.

7721. (*Mr. Bateman.*) The municipal borough of Glasgow contains also a considerable rural district?—Yes; but I think you will find that the mortality of Glasgow exceeds ours a good deal.

The witness delivered in the following document.

The following table based on the Registrar General's reports shows that, as compared with other densely populated towns, even where sanitary improvements have been more advanced than in Newcastle, it is fully equal or superior as far as the mortality supplies a test; 1853 is not given, as Newcastle presented an extraordinary increase of deaths in the quarter ending September 1853; but when that mortality is contrasted with other

towns visited by cholera in 1849 and 1853, it will be seen that it need not shrink from the comparison. In Liverpool and Manchester, a large area of country containing suburbans, villas, and farms is included

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Towns.	Population in 1851.	1849.		1850.		1851.		1852.		1853.	
		No. of Deaths.	Proportion per 1,000.	No. of Deaths.	Proportion per 1,000.	No. of Deaths.	Proportion per 1,000.	No. of Deaths.	Proportion per 1,000.	No. of Deaths.	Proportion per 1,000.
Newcastle-upon-Tyne	89,156	2,493	28	2,090	$23\frac{4}{10}$	2,333	26·2	2,725	30·6	–	43·5
Liverpool and West Derby	411,515	17,840	43·4	10,797	26·2	12,540	30·5	10,627	25·8	–	–
Manchester, Salford, and Chorlton	433,328	14,416	33·3	12,249	28	12,633	29·1	14,614	33·7	–	–
Leeds	101,343	4,201	42	2,502	24·7	3,182	31·5	3,371	32·3	–	–
Hull	50,670	2,736	54	1,325	26·1	1,315	26	1,482	27·2	–	–

The proportions of deaths *from cholera* to every 1,000 of the population in 1849 and 1853 are as follows, including all given by the Registrar as examples :—

	1849.	1853.
London—St. Saviour's, Southwark	15·3	-
St. Olave, ditto	18·1	-
Bermondsey, ditto	16·1	-
St. George's, Borough Road	16·4	-
Rotherhithe	20·5	-
Merthyr Tydvil	23·4	-
Neath	16·9	-
Hull	24·1	-
Plymouth	16·7	-
East Stonehouse	14·8	-
Stoke Damerel	19·3	-
Liverpool	16·7	-
Newcastle-upon-Tyne (no account) say	4·6.	16·4

In an elaborate table given at page 80 of the Registrar's Twelfth Annual Report on the "Mortality in some of the great Cholera Fields of England, on the Sea Coast and "Navigable Rivers," the contrast is also in favour of *Newcastle*. The following are the results deduced by him. I omit the data for the sake of clearness :—

Districts.	Ordinary Mortality in the Summer Quarter from all causes. Proportion per cent.			Annual rate of Mortality in the Summer Quarter of 1849. Proportion per cent.		
	Males.	Females.	Total.	Males.	Females.	Total.
London	1·284	1·189	2·473	5·136	4·756	9·892
Bristol	1·509	1·279	2·788	6·036	5·116	11·152
Bedminster	1·120	·935	2·055	4·480	3·740	8·220
Clifton	1·147	1·051	2·198	4·588	4·204	8·792
Merthyr Tydvil	2·551	2·546	5·097	10·204	10·184	20·388
Neath	2·097	2·342	4·439	8·388	9·368	17·756
Liverpool	2·125	2·305	4·430	8·500	9·220	17·720
West Derby	1·520	1·414	2·934	6·080	5·656	11·736
Tynemouth	1·631	1·571	3·202	6·524	6·284	12·808
South Shields	·936	·992	1·928	3·944	3·968	7·912
Newcastle-on-Tyne	·950	·798	1·748	3·800	3·192	6·992
Sunderland	·840	·727	1·575	3·392	2·908	6·300
Sculcoates	2·541	2·447	4·988	10·164	9·788	19·952
Hull	3·632	3·519	7·151	14·528	14·078	28·606
Portsea Island	2·289	2·013	4·302	9·156	8·052	17·208
Alverstock	2·268	1·590	3·858	9·072	6·360	15·432
Southampton	1·534	1·237	2·771	6·136	4·948	11·086
South Stoneham	·836	·739	1·575	3·344	2·956	6·300
Plympton, St. Mary	·709	·720	1·429	2·836	2·880	5·716
Plymouth	2·627	2·189	4·816	10·508	8·756	19·264
East Stonehouse	2·772	1·870	4·642	11·088	7·480	18·568
Stoke Damerel	2·995	2·504	5·499	11·980	10·016	21·996
St-Germain's	1·790	1·993	3·783	7·160	7·972	15·132

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From the foregoing table it appears that on the ordinary scale of mortality there were only three towns, out of twenty-three, lower than Newcastle; that in eleven towns the rate was more than double that of Newcastle; that in two it was three times, and in Hull, four times greater.

At the visitation in 1849 also, there were only three towns lower in the proportion of deaths; in eleven it was double that of Newcastle; in three it was three times greater, and at Hull four times greater; so that, when the sanitary improvements, effected in Newcastle from 1849 to 1853, were taken into account, there was every reason to have anticipated a very different result than that which followed the return of the epidemic in 1853.

This view is also confirmed by the general average given by the Registrar General, who, in his twelfth annual report states that the average annual rate of mortality in towns is 26, and of the country 18, in 1,000; and that in the summer of 1849 these rose to 41 and 23 respectively. The average of the cholera years in Newcastle is 35·7, and of ordinary years 26·6.

But it may properly be objected that averages cover the excessive mortality of particular localities; now a more detailed comparison of the sub-districts, given for 1849, shows that in nineteen out of thirty-six instances the mortality of Newcastle, in 1853, was less than that of other towns more favourably situated in 1849, and that the worst districts of this town compared advantageously with all of the others in the latter years.

In London.—Sub District	Bethnal Green, the deaths to every 1,000 were	-	40
	Whitechapel, North	-	51·5
	Stepney	-	32·2
Surrey.	St. Saviour's, Southwark	-	46·2
	St. Olave	-	104
	St. John	-	50
	Bermondsey, St. Mary Magdalen	-	51
	St. George's, Borough Road	-	51·6
	Lambeth Church, 2nd	-	52
	Rotherhithe	-	46
London District.			
Sub-District	East Greenwich	-	52·5
	Chelsea South	-	30
	,, North West	-	34·7
	Westminster	-	30·3
	St. Martin's-in-the-Fields, Charing Cross	-	33·6
	Marylebone Rectory	-	36·4
	St. Pancras, Camden Town	-	40·5
	St. Giles, South	-	43·3
	Holborn, St. Andrew, East	-	43·6
	West London, North	-	90·1
	London, City, South West	-	32·5
	Shoreditch, Holywell	-	36·2
	Haggerstone, West	-	41·2
Liverpool	St. Martin's, Sub-District	-	51·5
	Howard Street, ditto	-	71·8
	Dale Street ditto	-	63·2
	Mount Pleasant, ditto (few cases of cholera)	-	48·
Manchester	Ancoats, Sub-District	-	42·
	Deansgate, ditto	-	36·
	London Road, ditto	-	40
	Market Street, (including workhouse returns)	-	51
	St. George's ditto	-	42
Leeds	South East ditto	-	58
Hull	Humber ditto	-	51·2
	St. Mary's ditto	-	63
	Myton	-	53·3
Newcastle	Westgate	-	23·3
	St. Andrew	-	23·
	St. Nicholas	-	33·3
	All Saints	-	29·5
	Byker	-	3·

(*Mr. Clayton.*) It is imputed to us that we at Newcastle are averse to the introduction of the authority of the Board of Health; there is perhaps a natural disposition in Englishmen to manage their own concerns; and we must be excused for wishing to retain the management of our own concerns. Certainly grave doubts are entertained whether the addition of the medical officers of the Board of Health during the late attack of cholera did any good, or whether we should not have done better without them. We have unfortunately a feud amongst our medical men at this moment—and you would collect from the evidence of Dr. Gavin that, when he got amongst them, he found himself in the crater of a volcano—but there are many who concur in the opinion expressed by Dr. Clark that, during the cholera of 1832, when we had not the presence of any medical officers of the Board of Health, we managed our affairs quite as well. I had experience of the cholera

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during the whole term of its visitation in 1832, and also during the whole term of its visitation in 1853, and I certainly should be rather inclined to Dr. Clark's opinion that we managed it quite as well in 1832. But we then had not a feud amongst the doctors, they were all united; there was no Barber's Hall school and no Neville Hall school for them to split upon; they were all breaking their eggs at the same end. I see from a paper which you gave me yesterday that the doctors want another inquiry, hence we may infer that they have time to spare which I have not; but, I think, if we are to get up another blue book the doctors ought to pay for it and not the country. Gentlemen, we have sat now for a considerable length of time, and what are the practical results at which we have arrived? You, gentlemen, (and I will include your medical colleague who is absent to-day) will take away from this town precisely the knowledge which you brought of that mysterious malady, the Asiatic cholera, and the causes which influence its eccentric course. You have ascertained that in Newcastle, as in London, as in Liverpool, as in Edinburgh, as in Glasgow, there exist many courts, many alleys, and many places which are not satisfactory in sanitary properties, but that these exist in all large towns, and that they must continue to exist until we can change the habits of the people (and the habits of the people cannot be changed at once, it is only gradually that change can be effected,) there is no doubt; and yet Newcastle being, not I verily believe worse than other places but in some respects better, we find that on the recent visitation of the cholera Newcastle is stricken whilst other places escape. We find that in 1849 Newcastle escaped while other towns were stricken. You have ascertained that the pit villages of Wrekenton and Spital Tongues are each as dirty and undrained as the other, and both as dirty and undrained as the rest of the pit villages in Durham and Northumberland, and yet you find in 1853 that Wrekenton, which was severely visited in 1849, escapes altogether, whilst the Spital Tongues village is struck down. Looking to the rural villages you find the village of Whalton, which is quite as cleanly and as well drained as any of the rural villages of Northumberland; the inhabitants had confidently believed and flattered themselves that they were better than their neighbours, and I believe they think so still, and that they indignantly reject the evidence of an officer of the Board of Health who gave evidence to the contrary; but it is enough for me that their position is as good as the rest of the rural villages of Northumberland, and yet we find that they are stricken whilst the other rural villages escape. So far as the charges founded on the sanitary defects of the town affect the governing body I do not think that any sound ground has been laid for sustaining them. I believe that under all the circumstances in which they have been placed the council have done all that men could do. If you have an arbitrary power with unlimited access to the pockets of the people no doubt a great deal may be done, and done speedily; you may sweep away Sandgate and Pandon, and you may rear a Rue de Rivoli in their place, but whether it be right that such power should be possessed by a central board or an Emperor, it is not for me to give an opinion. But this I do say, that it is hard upon the town of Newcastle, a town which I believe for the last quarter of a century has made more progress in every sort of improvement than any town in the kingdom, I say it is very hard on the town of Newcastle, at the instance of her own sons, to be held out before the world as an example of the intensity of evils to which she is subjected in common with all other large towns, but, I believe, in a much less degree.

7722. (*Chairman.*) Does that conclude your evidence?—I have nothing more to offer to you.

The originals of the following documents were afterwards forwarded to the Commissioners by Dr. Gavin.

Newcastle-upon-Tyne, 29th October 1853.

Dear Sir,—I have much pleasure in forwarding to you herewith the resolution of the guardians of this union under the common seal, conveying to you their thanks for your services during the late epidemic; and permit me at the same time to express my personal acknowledgment of the courtesy I have experienced from you in my official interviews during your residence here.

I have the honour to be, &c.,

Hector Gavin, Esq., M.D., &c. (Signed,) George Forster, Clerk.

Newcastle-upon-tyne Union.

At the weekly meeting of the Board of Guardians, held on Friday, the 28th day of October 1853,

It was resolved unanimously,—

That the thanks of this Board be presented to Hector Gavin, Esq., M.D., for the talent, promptitude, and urbanity exhibited by him in the performance of the important and arduous duties of his office, as medical superintending inspector of the General Board of Health, during the prevalence of the epidemic with which this town has been lately visited; this Board being satisfied that by the sound advice given and the wise regulations propounded by him, the spread of the disease has been materially checked.

Sealed with the common seal of the Union, and signed by the Chairman this 28th October 1853.

(Signed,) Henry Ingledew, Chairman. L. S.

Newcastle, 24th November 1853.

Dear Dr. Gavin,—Having received your address from Mr. Hutton, one of your employés at Dundee, I beg to forward you an address from forty-seven of the medical practitioners of Newcastle-upon-Tyne, testifying their opinion of your proceedings during the late very severe attack of cholera.

This document will, I trust, counterbalance, even at this late date, any injury you may otherwise have sustained during your stay among us.

Doubtless you will give it that publicity which appears so necessary.

I remain, dear Dr. Gavin,

Very truly yours,

Hector Gavin, Esq., M.D., &c., &c. D. Embleton.

Newcastle-upon-Tyne, November 1853.

The undersigned medical practitioners of Newcastle-upon-Tyne desire to express their appreciation of the valuable services rendered by Dr. Gavin and the officers of the Board of Health, and their approval of the vigorous measures adopted by these gentlemen during the epidemic cholera, with which this town and neighbourhood have recently been visited.

They are especially anxious to bear testimony to the untiring energy displayed by Dr. Gavin, in carrying out the necessary requirements of his responsible office, and to the uniform courtesy shown by him to the members of the profession in the difficult circumstances under which he was called to act.

(Signed,) T. E. Headlam, M.D., consulting physician of the infirmary.
D. B. White, physician to the infirmary, &c., &c.
T. M. Greenhow, F.R.C.S.E., senior surgeon to the Newcastle infirmary.
Henry Heath, F.R.C.S., surgeon to the infirmary.
J. M. Bates, M.D., physician to the infirmary.
John Fife, F.R.C.S., &c., &c., &c.
Edward Charlton, M.D., physician to the infirmary, &c., &c.
Dennis Embleton, M.D., physician to the infirmary
John Sang.
Samuel Merryne Frost, M.R.C.S. Eng.
Joseph Bainbridge Fife.
R. C. Frost, M.R.C.S. Eng.
W. C. Preston.
William Winship, M.R.C.S.
Thomas Annandale, M.R.C.S. Eng.
Arthur H. Talmadge, M.R.C.S. Eng.
Robert W. Bleasley, M.D.
William Nesham, M.R.C.S. Eng.
James Edgeome, M.R.C.S. Eng.
W. Farr, M.R.C.S. Eng.
W. A. Tanson, M.R.C.S. Eng.
D. Mackintosh, M.D., physician to Newcastle lunatic asylum.
Thomas Humble, M.D., physician to the dispensary and fever hospital.
John Liddell, M.R.C.S.
James Lunn Gilchrist, M.R.C.S. Eng.
John Houseman, M.D.Ed., M.R.C.S., London and Edin.
Henry Harvey, M.R.C.S.E.
Charles Gibb, M.R.C.S.E.
William Boyd, M.R.C.S.E.
John Hawthorn, M.R.C.S. Eng., surgeon to the dispensary.
Henry P. Allison, M.R.C.S.E. Eng.
John Samuel Pearse, M.R.C.S. Eng., &c.
William Preston, M.R.C.S. Eng.
Arthur Umphelby, M.D. M.R.C.S. Eng., &c.
Thomas Y. Thompson, M.R.C.S. Eng.
James Miller, M.R.C.S. Eng.
M. Burnup, M.D., Edin.
Charles Gibson, M.D.
Francis W. Manford, L.R.C.S. Edin.
Charles Burley, A.R.C.S.E.
John Stevenson Paget, M.R.C.S. Eng.
James Alexander, M.D., M.R.C.S.
Thomas Leslie Gregson, M.R.C.S.E., &c.
George Y. Hood, M.R.C.S. & L.A.H.
W. H. Fife, M.R.C.S., &c.
John Lang, M.R.C.S. Edin.
George A. Hutton, M.R.C.S. Eng.

The following documentary information was also subsequently communicated to the Commissioners by the Clerk to the Board of Guardians of the Newcastle-upon-Tyne Union, and by the authority of that Board.

TABLE showing the NUMBER of TENANTS or FAMILIES, and the NUMBER of each kind of TENANCY or HOLDING in each of the PARISHES or TOWNSHIPS of the NEWCASTLE-UPON-TYNE UNION, except the RURAL TOWNSHIPS of HEATON and FENHAM, which were entirely free from CHOLERA:—

Parish or Township.	Number of Self-Contained Houses.	Tenements.		
		Of One Room each.	Of Two Rooms each.	Of Three Rooms each.
All Saints	2,743	3,900	650	150
St. John	410	901	396	18
St. Nicholas	216	650	199	10
Benwell	53	95	110	5
Westgate	1,200	933	1,423	203
Elswick	452	123	388	73
St. Andrew	1,419	1,093	364	46
Jesmond	288	57	51	-
Byker	126	90	1,170	-
	6,907	7,844	4,751	505
Total number of tenants or families or of tenancies and holdings of all kinds			20,007	

TABLES showing the NUMBER of DEATHS from CHOLERA in each STREET and LANE, of each PARISH and TOWNSHIP, in NEWCASTLE-UPON-TYNE UNION, in the autumn of 1853; the NUMBER which occurred DAILY; a CLASSIFICATION as to OCCUPATIONS, AGES, &c., with the AMOUNT of POPULATION, and RATE of MORTALITY of each PARISH and TOWNSHIP: collected and prepared by one of the assistant overseers, by order of the Board of Guardians.

The cholera, as an epidemic, may be considered as having begun on the 1st of September and ended on the 4th day of November, 1853, during which period 1533 persons fell victims to the disease.

A case occurred on the 30th day of August, and two or three cases a few days after the 4th of November, but as they did not occur on continuous days, they were not reckoned as belonging to the period of the epidemic.

No cases occurred in the two rural townships of Heaton and Fenham.

Names of Streets.	Number of Deaths in each.	Names of Streets.	Number of Deaths in each.
All Saints' Parish.		Croft-stairs	1
		Cut-bank	4
Argyle-street	6	Dean-court	2
Argyle-place	1	Dog-bank	7
Ballast-hills (East)	4	Egypt, (New-road)	3
Ballast-hills (West)	9	Elwick's-lane	1
Bedford-street	6	Factory-lane	1
Bell's-court	6	Franklin-street	1
Blagdon-street	5	Gaol	9
Blagdon-street (Little)	5	Garth-heads	3
Blythe's-nook	7	Gibson-street	14
Butcher-bank	12	Grenville-street	4
Byker-chare	1	Grey-street	1
Buxton-street	7	Hardy's-buildings	1
Camden-street	1	Heaton-terrace	1
Canada-street	5	High-bridge	2
Carliol-street (Part of)	1	Hopper's-entry	5
Carliol-square	2	Hornsby-chare	2
Carlton-street	1	Howard-street	8
Causeway-bank	1	Ingham-place	1
Chatham-place	3	Keelman's-hospital	5
Colliery-square	1	Loyd's-court	3
Craig's-alley	3	Lime-street	14

Names of Streets.	Number of Deaths in each.
Low-bridge	3
Manors	1
Manor-chare	6
Melbourne-street	7
Miller's-hill	1
Mushroom	2
Napier-street	1
New-road (South)	8
New-road (North)	2
New-quay	2
North-shore	6
Ouse-street	7
Painter-heugh	4
Pallister's-chare	1
Pandon-dean	7
Pandon-bank	8
Pandon	10
Picton-terrace	1
Pilgrim-street	19
Quayside	2
Quality-row	6
Regent-terrace	2
Rewcastle-chare	1
Richmond-street	5
Ridley-villas	3
Russell-terrace	2
Sallyport and court	2
Saint Ann's-terrace	1
Saint Lawrence	9
Saint Lawrence-square	1
Sandgate	19
„ Cross Key's-entry	2
„ Eddy's-entry	5
„ Half Moon-entry	7
„ Hunter's-entry	1
„ Johnson's-entry	4
„ Malcolm's-entry	0
„ Milk-market	2
„ Mill-entry	1
„ Nag's Head-alley	9
„ Nimmo's-entry	1
„ Pin-entry	2
„ Pot House-entry	1
„ Ropery-bank	2
„ Sellar's-entry	3
„ Somerville's-entry	3
„ Swirle	1
„ White House-entry	1
„ White Boar-entry	3
„ Young's-entry	7
Shieldfield	3
Shield-street	2
Silver-street	14
Side (East)	2
Stepney-terrace	4
Trafalgar-street	5
Trinity-chare	2
Tyne-street	3
Union-terrace	3
Vint's-buildings	1
Wall-knoll	11
Wesley-street.	7
Wesley-terrace	1
Wilkinson's-buildings	1
Wilkie-street	1
York-street (Shieldfield)	2
York-street (Ouse Burn)	5
Total	450

Names of Streets.	Number of Deaths in each.
Saint Nicholas' Parish.	
Amen-corner	1
Bigg-market (East)	4
Castle-garth	13
Castle-stairs	1
Castle-bankside	1
Close	11
Cloth-market	7
Forth-banks	8
Forth-terrace	3
Grainger-street	2
Hanover-street	4
Hanover-terrace	5
High-bridge, (West)	2
King-street	1
Long-stairs	1
Mosley-street	4
Nun-street	1
Quayside, on board a vessel	1
Queen-street	7
Saint Nicholas' Church-yard	3
Sandhill No. 32	1
Side	6
Side, Burnt House-yard	1
Side, Vickers-entry	2
Skinners-burn	4
Tuthill-stairs	1
Union-street	1
Vagrant-ward	17
Total	113
Jesmond Township.	
Brandling-place	8
Jesmond High-terrace (No. 2)	1
Saint Mary's-terrace	1
Sandyford-place	1
Total	11
Saint Andrews' Parish.	
Albion-street	1
Back-lane, (Gallowgate)	12
Barrow's-court	1
Blackett-street	4
Blackett-place	3
Brunswick-place	1
Carliol-street	3
Clarence-place	1
Clayton-street, (East)	7
Crescent-place	7
Croft-street	2
Croft-court	2
Cottage, (Town-moor)	1
Darn-crook	1
Eldon-square	2
Eldon-square-lane	3
Eldon-street	1
Ellison-place	1
Erick-street	1
Fleece-court	3
Gallowgate	9

Names of Streets.	Number of Deaths in each.
Grainger-street	2
Green-court	2
Hall's-court, (Newgate-street)	3
Harper's-court, (ditto)	1
High Friar-street	19
High-bridge	1
Hood-street	1
Hood-street, (Sandyford)	1
Hutton's-court, (Pilgrim-street)	1
Lambton-place	3
Leazes-terrace	3
Leazes-crescent	2
Leazes-lane	2
Liverpool-street	10
Lovaine-terrace	1
Lovaine-place	1
Mackford's-entry	8
Market-street	3
Mortimer's-court	4
Morton's-court	1
Nelson-street	2
Newgate-street	6
Northumberland-street	6
Northumberland-court	2
Nun-street	1
Oxford-street	1
Pandon-dean	2
Pattison's court, (Percy-street)	2
Park-place	6
Percy-street	12
Percy-place	2
Percy-court	4
Picton-place	1
Picton-place-lane	3
Pilgrim-street	4
Princes-street	1
Prudhoe-street	7
Prudhoe-place	1
Prudhoe No. 1, Court	2
Prudhoe No. 2, Court	1
Stamfordham-place	2
Sandyford-lane	1
Smith's-court, (Prudhoe-street)	1
Spital-tongues	27
Saville-row	2
Saint Andrew's-court	2
Taylor's-court, (Newgate street)	5
Terrace-place	2
Vine-lane	8
Total	251

Saint John's Parish.

Back-row	5
Bailiff-gate	1
Bath-lane	1
Bigg-market, (West Side)	1
Clayton-street, (West)	6
Charlotte-square	1
Clogger's-entry, Head of Side	10
Collingwood-street	3
Cross Keys-entry, Head of Side	2
Cross-street	2
Dawson's-court	4
Denton-chare	2
Denton's-court, Bigg-market	1
Derwent-place	1
Derwent-crook	1
Fenkle-street	1
Fever-house	1
Forth-street	3
Forth-lane	2
Forth-place	1
Friars	10
Goulbourn's-yard	2
Groat-market	9
Handyside's-entry, Side	1
Hanover-square	1
Hardcastle's-court	3
Head of Side	3
Infirmary	8
Low Friar-street	18
Mill-entry	4
Monk-street	2
Monk-square	2
Newgate-street	7
Newgate-court	1
New-court, (Westgate-street)	1
Orchard-street	7
Pearson's-court	2
Postern	1
Pudding-chare	23
Queen-street	3
Rosemary-terrace	2
Rosemary-lane	14
Saint John's-lane	7
South-street	2
Stowell-street	7
Stowell-square	3
Sussex-street	3
Thornton-street	7
Union-street, (West)	1
Victoria-terrace	3
Westgate-street	16
West Wall-cottages	5
Zion Chapel-yard	2
Total	229

Elswick Township.

Elswick	1
Elswick (Low)	1
Elswick-terrace	13
Elswick East-terrace	5
Elswick West-terrace	1
Elswick-row	1
Elswick-lane	1
East-parade	1
West-parade	1
Judson-street	1
Judson-place	2
Railway-street	1
Railway-terrace	3
Scotswood-road	1
Workhouse	10
Total	43

Names of Streets.	Number of Deaths in each.
Westgate Township.	
Abinger-street	1
Arthur's-hill	4
Back Blandford-street	2
Back George-street	1
Back Marlbro'-street	2
Bailey-street	1
Bath-lane, West	3
Blandford-street	28
Blandford-street, West	2
Blenheim-street	19
Buckingham-street	16
Chapel-lane	7
Churchill-street	8
Cumberland-row	5
Diana-street	4
Dickson's-buildings	12
Duke-street	14
Edward-street	4
Elswick-street	4
Forth-banks, West	2
Gallowgate, Head of	2
George-street	17
George-street, West	1
Greenfield-place	1
Harle-street	1
Hedley street	3
Hedley-place	1
Hill-street	4
John-street	2
Lawson-street	1
Lax's-buildings	3
Mansfield-street	2
Marlbro'-street	4
Marlbro'-place	1
Oak's-place	3
Oyster shell lane	7
Peel-street	5
Pitt-street	8
Pitt-street, West	1
Ponteland-terrace	2
Seaham-street	5
Spring-street	2
Spring-garden-terrace	2
Spring-garden-cottages	1
Swinburne-place	2
Summerhill	9
Sunderland-street	9
Temple-street	7
Thornton-street	7
Villa-place	4
Waterloo-street	5
Waterloo-lane	1
Wellington-street	11
Wellington-terrace	3
Westmoreland-street	4
Westmoreland-terrace	1
Westmoreland-lane	3
Westgate-hill-terrace	1
Westgate-hill-cottages	1
Westgate	2
William street	3
Total	291
Benwell Township.	
Benwell	1
Crooked-billet	2
Greenhow-terrace	9
Scotswood	1
Total	13
Byker Township.	
Byker-bar	19
Brewery-bank	1
Drough's-buildings	7
Byker-buildings	3
Byker-hill	11
Byker-village	1
Crawford's-buildings	1
Dent's-hole	4
Gardener's-houses	10
Johnson's-houses	1
Lawson-street	6
Old Shieldfield	1
Pity-me	1
Ripponden-street	1
Saint Peter's	23
Saint Anthony's	13
Stepney-bank	12
Stepney-square	5
Thompson-street	3
Ouseburn, (above the Flax-mill)	6
Union-mill	1
West-houses	2
Total	132

Rate of Mortality and Population of Sandgate.

Place.	Population.	Number of Deaths.	Rate of Mortality.
Sandgate, (*including* New Road south side, Ropery Banks, North Shore, and New Quay.)	4890	90	1 in 54.

TABLE showing the NUMBER of DEATHS from CHOLERA, and the rate of Mortality in each Parish and Township.

Names of Parishes and Townships.	Total of Deaths in each Parish.	Population of each Parish.	Rate of Mortality in each Parish.
Saint Nicholas' Parish *	113	5361	1 in 47
Saint John's ditto †	229	9858	1 in 43
All Saints' ditto	450	26,110	1 in 58
Saint Andrew's ditto	251	15,639	1 in 62
Westgate Township	291	16,479	1 in 57
Byker ditto	132	7040	1 in 53
Elswick ditto	43	3538	1 in 82
Benwell‡ ditto	13	1271	1 in 98
Jesmond ditto	11	2089	1 in 189
Total	1533	87,385	1 in 57

* Saint Nicholas, exclusive of Vagrant Ward, 1 in 56. † Saint John, exclusive of Infirmary, 1 in 45.

Classification as to Occupations.

TABLE showing the NUMBER of DEATHS from CHOLERA, in each of the following Classes, in NEWCASTLE UNION, 1853.

NAMES OF PARISHES AND TOWNSHIPS.	GENTRY.					TRADESMEN.					ARTISANS AND MECHANICS.					LABOURERS.				
	Gentlemen.	Wives of.	Children.	Widows.	Spinsters.	Tradesmen.	Wives of.	Children.	Widows.	Spinsters.	Artisans and Mechanics.	Wives of.	Children of.	Widows.	Spinsters.	Labourers.	Wives of.	Children.	Widows.	Spinsters.
Saint Nicholas' Parish	..	..	..	..	..	8	7	6	..	..	26	5	12	9	3	19	11	4	1	2
Saint John's ditto	..	..	..	..	1	12	8	6	2	3	33	38	21	12	4	38	19	17	7	5
All Saints' ditto	..	1	..	..	..	18	8	4	8	1	68	45	49	17	17	63	41	76	16	18
Saint Andrew's ditto	5	1	3	2	4	23	10	2	5	10	16	26	21	7	12	30	32	26	6	10
Westgate Township	..	1	..	2	1	15	10	14	9	5	47	35	46	8	10	30	25	30	9	1
Byker ditto	..	..	1	..	..	1	2	2	1	..	19	13	21	4	..	18	17	27	3	1
Elswick ditto	..	..	..	1	..	2	2	1	2	..	10	5	5	3	3	1	3	3	1	1
Benwell† ditto	..	..	..	..	..	1	..	..	..	..	..	2	2	1	..	2	3	2	..	..
Jesmond ditto	..	..	..	..	..	6	..	..	..	..	..	..	..	..	2	2	..	..	1	..
Totals	5	3	4	5	6	84	47	35	27	19	219	169	180	61	51	203	146	185	46	38

Classification as to Ages.

TABLE showing the Number of PERSONS who DIED of CHOLERA of the following AGES, in NEWCASTLE UNION, 1853.

NAMES OF PARISHES AND TOWNSHIPS.	1 to 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	20 to 25 years.	25 to 30 years.	30 to 40 years.	40 to 50 years.	50 to 60 years.	60 to 70 years.	70 to 80 years.	80 to 90 years.	90 to 100 years.	TOTAL.
Saint Nicholas' Parish	17	3	3	10	8	3	20	10	21	13	4	1	—	113
Saint John's ditto	29	9	5	15	12	18	44	33	32	21	10	1	—	229
All Saints' ditto	93	20	16	15	36	12	67	74	55	39	16	7	—	450
Saint Andrews' ditto	32	13	5	6	13	13	43	28	37	39	18	4	—	251
Westgate Township	46	22	12	14	12	19	45	33	47	27	14	—	—	291
Byker ditto	33	9	6	3	6	6	25	16	10	8	9	—	1	132
Elswick ditto	3	3	4	3	1	2	8	5	5	3	5	1	—	43
Benwell‡ ditto	2	—	—	1	2	—	3	1	2	2	—	—	—	13
Jesmond ditto	1	1	—	—	—	2	2	2	—	3	—	—	—	11
TOTAL	256	80	51	67	90	75	257	202	209	155	76	14	1	1533

‡ N.B. The township of Benwell, although within the Poor Law Union, is without the borough of Newcastle. The fifth township within the borough of Newcastle is Heaton: and in this no mortality from cholera took place.

TABLE SHOWING THE NUMBER OF DEATHS AS THEY OCCURRED DAILY, DURING THE EPIDEMIC, DISTINGUISHING MALES AND FEMALES.

In All Saints' District, the first case occurred on the 1st of September, and the last on the 23d of October. In St. Nicholas' District, the first case occurred on the 1st of September, and the last on the 16th of October. In St. Andrews' District, the first case occurred on the 6th of September, and the last on the 24th of October. In the Westgate District, the first case occurred on the 1st of September, and the last on the 29th of October. In the Byker District, the first case occurred on the 4th of September, and the last on the 4th of November 1853.

DATE.	MALE.	FEMALE.	TOTAL.	DATE.	MALE.	FEMALE.	TOTAL.
1853.				Brought ford.	662	755	1417
September 1	1	5	6	October 4	4	5	9
— 2	0	0	0	— 5	4	10	14
— 3	3	1	4	— 6	5	5	10
— 4	3	3	6	— 7	4	3	7
— 5	4	3	7	— 8	3	5	8
— 6	4	1	5	— 9	1	1	2
— 7	0	3	3	— 10	1	2	3
— 8	9	7	16	— 11	1	1	2
— 9	7	12	19	— 12	3	3	6
— 10	8	11	19	— 13	1	4	5
— 11	16	15	31	— 14	2	3	5
— 12	12	26	38	— 15	1	3	4
— 13	32	27	59	— 16	3	3	6
— 14	42	48	90	— 17	4	4	8
— 15	54	52	106	— 18	3	2	5
— 16	56	58	114	— 19	1	2	3
— 17	47	56	103	— 20	0	1	1
— 18	46	57	103	— 21	0	3	3
— 19	44	67	111	— 22	0	2	2
— 20	38	47	85	— 23	1	1	2
— 21	29	39	68	— 24	1	2	3
— 22	42	40	82	— 25	1	1	2
— 23	30	30	60	— 26	0	0	0
— 24	30	26	56	— 27	0	0	0
— 25	35	21	56	— 28	1	1	2
— 26	15	19	34	— 29	1	0	1
— 27	12	22	34	— 30	0	0	0
— 28	12	14	26	— 31	1	0	1
— 29	7	11	18	November 1	0	0	0
— 30	6	6	12	— 2	1	0	1
October 1	6	8	14	— 3	0	0	0
— 2	3	12	15	— 4	0	1	1
— 3	9	8	17				
Carried forward	662	755	1417	TOTALS.	710	823	1533


PLAN
OF THE TOWN DISTRICTS OF THE
BOROUGH of GATESHEAD
SHEWING THE LOCALITY AND NUMBER OF
DEATHS FROM CHOLERA
1853.
Reference. Each Black Dot thus ● represents one Death.
NOTE.
RIVER TYNE
NEWCASTLE UPON TYNE
HIGH STREET
SALTMEADOWS
SCALE.
William Hall C.E.
Borough Surveyor

MINUTES OF EVIDENCE

TAKEN BEFORE

THE CHOLERA INQUIRY COMMISSIONERS,

GATESHEAD.

Commissioners.

JOSEPH BURNLEY HUME, Esq. IN THE CHAIR.

JOHN FREDERIC BATEMAN, Esq.

WILLIAM KELL, Esq., examined.

William Kell, Esq.

8th March 1854.

7723. (*Chairman.*) You are the town clerk of the borough of Gateshead and clerk to the Local Board of Health also?—I am.

7724. I believe the borough was not made a Parliamentary borough until the time of the Reform Act of 1832?—It was not.

7725. Had it a municipal body previously?—There was an old body called the borough-holders and freemen, but the first mayor of Gateshead was elected on the 1st of January 1836, under the Municipal Corporation Reform Act. I am anxious to avoid some vexed questions which have arisen as to the basis upon which the Municipal Corporation Act was applied to Gateshead. When the Municipal Corporation Commissioners were down here, they inquired and reported that Gateshead was an ancient borough, but up to that time there had been no mayor, aldermen, or council. The borough of Gateshead was inserted in the schedule of the Municipal Corporation Act, and thereupon councillors, aldermen, and a mayor were chosen; since which time we have had regular elections of municipal officers.

7726. I believe also that, at the time of the Reform Act, a small portion of the chapelry of Heworth was added to the previous parish of Gateshead, to make up the Parliamentary borough?—It was so, the ancient borough of Gateshead having been co-extensive with the parish.

7727. Then in the year 1849 an official inquiry was made here by Mr. Rawlinson, uperintending inspector of health?—There was.

7728. And subsequently there was issued a provisional order of the General Board of Health, confirmed by statute, applying the Public Health Act, together with certain other enactments, to the borough of Gateshead, and constituting the town council the local board of health?—That was so. The district to which the Public Health Act was applied being co-extensive with the Parliamentary and municipal borough also, the town council were of right the local board of health.

HENRY BRADY, Esq., examined.

Henry Brady, Esq.

7729. (*Chairman.*) You are a medical man, practising in this borough?—Yes.

7730. Since when have you practised here?—Since 1828.

7731. In the years 1831 and 1832 had you experience of the cholera here?—I had.

7732. You attended one or two of the first cases, I believe?—I attended the first three, I believe.

7733. And have been continually resident and practising here ever since?—Yes.

7734. With reference to the epidemics which, within your experience, have prevailed here in Gateshead, I presume we may take them to have been much the same as those concerning whose prevalence in Newcastle we have already had evidence?—Yes, very much the same.

7735. You are acquainted, no doubt, with the reports of the medical institutions of Newcastle, the infirmary, the fever hospital, and the dispensary. In your judgment, may we take the statements of facts and the expressions of opinion in these reports as applying equally to Gateshead as to Newcastle?—I should think equally so.

Henry Brady, Esq.

8th March 1854.

7736. Many of the patients of the Newcastle dispensary and infirmary will have been people who had come from Gateshead, and many fever cases which originated in Gateshead will, no doubt, have been sent over the water to the fever hospital in Newcastle?—Yes. With regard to the infirmary that would apply pretty extensively, because we have no institution for the reception of surgical cases; but with regard to the dispensary, our own dispensary would take in such cases.

7737. Are you cognizant of the contents of the reports of that Gateshead dispensary?—Very much so. I examined them each year, when issued to the subscribers.

7738. May we accept those reports as meeting with your approbation, in respect of the statements of fact and the expressions of opinion therein contained?—Decidedly.

7739. Have you a fever hospital here?—No; our fever cases—when deemed advisable—are sent to the fever hospital in Newcastle.

7740. With regard, then, to the infirmary and the fever hospital of Newcastle, the reports will apply to Gateshead almost as much as to Newcastle?—Yes.

7741. I believe the cholera of 1831 broke out here on the eve of Christmas Day with frightful rapidity?—It did. There had only been two cases previously to the evening of Christmas Day.

7742. (*To Mr. Kell.*) Are you, as town clerk here, cognizant of the contents of this report on the borough of Gateshead, made by Mr. Rawlinson to the Board of Health?—I am.

7743. Have you ever heard any of the statements therein contained impugned to any material extent?—I never heard the slightest imputation upon the accuracy of any statement contained in that report.

7744. And you think we may take the statements of this report by Mr. Rawlinson to be correct, as far as your knowledge and experience goes?—I do. I furnished a great deal of statistical information myself, and I believe that it is strictly correct.

7745. (*To Mr. Brady.*) In this report by Mr. Rawlinson it is mentioned that the cholera first broke out on the eve of Christmas Day; and that on the 27th of December, that is to say within two days, 172 cases had been reported, of which 63 had died?—Yes, it is; and I should presume Mr. Rawlinson endeavoured to ascertain the facts correctly.

7746. That would, of course, represent a very frightful rapidity and severity of outbreak in 1831?—It was exceedingly so.

7747. With reference to the Irish fever which prevailed here in 1846-48, the same report contains a statement made by six medical men, Dr. Jollie, Dr. Dixon, Dr. Barkus, Mr. Bennett, Mr. Pearse, and Mr. Robinson, to the effect that that outbreak also was very intense, and that the rate of mortality for each of the six months between September 1847 and February 1848 varied from one in seven of the population to one in twenty-three, the average being one in fourteen. That, of course, would also represent a very frightful extent and malignancy of fever?—It would. I am not, however, precisely aware of the statistics of the matter.

7748. I see also, at a later period of this report, that Mr. Bennett states that, on the average, one in thirteen of the Irish fever cases in Wrekenton were fatal?—I have no doubt that that is quite correct.

7749. And I remember, in another place, a statement with regard to the cholera that broke out here in 1849, that for a considerable time nearly two in three cases were fatal?—I should think that, in all the outbreaks of cholera which we have had here, the amount of mortality will have been very high.

7750. Taking these facts, then, into consideration, do you think that the late outbreak here in 1853 was more intense or severe than the previous ones?—No, I do not. It was more extensive perhaps, but not more fatal in proportion to the number of persons attacked.

7751. With regard to the previous outbreaks of cholera in 1831, Irish fever in 1846-8, cholera in 1848-9, and so on, were the epidemics confined to any particular class of the population, lower or higher?—You can scarcely say they were confined to any class; but no doubt the poorer classes were more decidedly under their influence than those in the upper walks of life; the cholera of 1849, however, I should observe, did not spread much in Gateshead. We had very little of it here. It was chiefly in Wrekenton, at the extreme southern boundary of the borough.

7752. With regard to this last outbreak, did it affect the same classes as the previous epidemics, or did it make any difference in respect of the classes it attacked?—I should think there was very little difference.

7753. Did it reach the middling classes, that is to say the shopkeepers?—Not to any great extent.

7754. In Newcastle it appears to have reached the shopkeepers pretty extensively, and even the gentry to a certain extent; and if many of the families of the gentry had not left the town it might have done so to a still greater extent. Did the same facts occur here?—Several cases occurred here amongst the middle classes, but few in proportion.

7755. Do you think it prevailed among them to a greater extent than the previous epidemics had done?—I should not think there was much difference. Perhaps it might have done so a little, but I am not aware of any very decided difference.

7756. In respect of the localization of these various epidemics, should you say that the cholera of 1831 for instance prevailed in any specific parts of Gateshead?—I think there is very little doubt that it spread more extensively in the lower parts of the town,

but in this first outbreak it was not confined to them by any means. Cases occurred in the higher parts of the borough, in Gateshead High and Low Fell. Within twenty-four hours of Christmas Eve the whole town was laid under its ban, more or less.

7757. (*Mr. Bateman.*) I understand you to say that, at its first appearance, it was dotted more or less over the whole place?—Within twenty-four hours probably it was so over the whole district.

7758. And after that it appeared to locate itself in peculiar districts?—Yes.

7759. (*Chairman.*) There were, in fact, special and favourite seats of the disease in 1831?—Yes; there is little doubt of it.

7760. Do you think that the epidemic of Irish fever observed the same laws of localization, and prevailed chiefly in the same seats?—I should say it did; more obviously so, perhaps, than the cholera itself.

7761. With regard to this last outbreak of cholera, do you think that it prevailed chiefly in the same seats of disease, or in others?—I should think to a great extent in the lower and worse parts of the town. The town, of course, is densely populated, and wherever you have a greater number of people resident within a certain space you must expect to have a larger proportion of disease; but even beyond that, I have no doubt that it spread more in Hillgate, Pipewellgate, Leonard's Court, and places of that type, than in the cleaner and better ventilated parts of the town.

7762. Is it, in your judgment, a fact that the recent epidemic of cholera followed much the same laws with regard to its localization as all the previous epidemics had done?—As all epidemics must do, more or less, I apprehend.

7763. There was nothing in the prevalence of this last outbreak of cholera to distinguish it very materially, as regards its localization, from previous epidemics?—No, I think not.

7764. With regard to the rates of mortality which have resulted in Gateshead from the prevalence of these epidemics here, be good enough to look at that paper, which has been furnished to me by the Registrar-general. You will see there a return of the mortality per thousand in Gateshead for every year since 1839?—Yes.

7765. Are those, in your judgment, high rates of mortality?—There is a very considerable diversity; 1846 seems to have been a remarkably fatal year.

7766. Scarlatina prevailed then, and at the same time Irish fever also, I believe?—Yes.

7767. But are those, in your judgment, high rates of mortality?—All of them, I should say, rather beyond the average.

7768. The average of the fifteen years is not put down, but computing it, it appears that on the average of the last fifteen years the mortality per thousand per annum has been 26.6. I suppose that, in your judgment, would be a high average to maintain over so wide a period?—Yes, it is.

7769. I should observe that Mr. Rawlinson, in his report, gives a very much higher return of the mortality than is there stated; the explanation of which, I suppose, is given in Mr. Rawlinson's report, in page 21, where he alludes to the difficulty which he found in ascertaining the population and drawing a correct conclusion?—(*Mr. Clephan.*) May I be allowed to give what I think is the explanation? The Registrar-general's return will be founded on the statistics of the Gateshead union, while Mr. Rawlinson takes Gateshead town. The Gateshead union is about fifteen miles long.

7770. (*To Mr. Clephan.*) How do you know that the Registrar-general's return includes any more than the borough?—Because I am quite sure, from consulting the returns quarterly, that the population there given is the population of the whole union. In the column of population you will not find the population of Gateshead given distinct from the population of the union. In Newcastle you will have a correct average of the mortality of the town, because there the union and the town are one and the same. In Gateshead it is quite different.

7771. The Gateshead union is very much larger than the Gateshead borough?—It is fifteen miles long by six or seven wide. The population of the union in rough numbers is about double the population of the town of Gateshead.

7772. (*To Mr. Brady.*) With regard to one part of the borough at all events you may perhaps be acquainted with the actual mortality. It is stated in Mr. Rawlinson's report, that in a few weeks of 1849 the mortality of Wrekenton was one-seventh of the whole population, an opinion in which he is supported by Mr. Davis, a surgeon in this borough; while Mr. Bennett, another surgeon, states that one-sixth of the population nearly was carried away, that is to say, 120 people out of 700. Are you aware of those circumstances?—I am.

7773. And you believe these statements to be correct?—Quite so.

7774. Referring for a moment to the causes of these epidemics, you will be aware that in the reports of the medical institutions of Newcastle—and I have no doubt also in the reports of the Gateshead dispensary which Mr. Kell is going to furnish to us—different causes are assigned. You have stated that you are cognizant of the contents of those reports. Do you differ at all from the opinions there expressed as to the causes which have at all events seriously aggravated the mortality arising from those epidemics?—No, not as seriously aggravating it; taking that view of the question, I would not at all. There might be some difference of opinion as to the originating cause of these epidemics.

Henry Brady, Esq

8th March 1854.

7775. In the 9th page of Mr. Rawlinson's report on Gateshead, he mentions among the aggravating causes of this excessive mortality the following circumstances: stagnant filth, ruinous, neglected, and filthy dwellings, the absence of personal cleanliness, and other matters. Would you concur in that opinion.—Yes, as aggravating circumstances and predisposing causes.

7776. And again, in the report which was furnished to Mr. Rawlinson at his inquiry by the six medical gentlemen to whom I have already alluded, I find mentioned, as aggravating causes of this mortality, the bad form of house construction—back to back, with imperfect ventilation, or built into damp banks of earth—the narrowness of the thoroughfares, the want of ventilation and light, the contamination of the atmosphere by effluvia from privies and middens, the smoke nuisance, and many other circumstances of that kind. Would you differ from the opinion which ascribes considerable aggravation of the mortality to those circumstances?—No.

7777. Similar statements again are made by Mr. Davis and Mr. Bennett with regard to Wrekenton. They in their judgment are able to trace, at all events, the great intensity of these epidemics to filth and bad sanitary arrangements of different kinds. Would you agree in that view also?—To a considerable extent I should; still it is difficult to account for its spread in Wrekenton. It is seated upon one of the highest elevations in the county of Durham; and the houses are not, except in certain localities, packed so closely as they are with us. I have no doubt at all that there was a long-standing accumulation of filth in different parts; still it is difficult, merely from this circumstance, to account for the immense mortality there; because it was very much greater than I have known it in any other place, so far as statistical returns furnish a criterion.

7778. Are you well acquainted with the localities referred to, Ship Lane, and Hosegood Square, and so on?—Yes, I know the localities very well; they are the worst parts of Wrekenton.

7779. And were overcrowded at that time by the very worst sort of population in a frightful manner?—Yes, at that period they were overcrowded.

7780. Taking into consideration the ordinary state of the property there, and the excessive degree of overcrowding by a very uncleanly population which then prevailed, are you surprised to find the mortality so high as it was?—No, I should anticipate a somewhat high average mortality; I am more surprised, however, to find that it should break out just in that locality, and yet not spread in districts apparently quite as bad in the immediate neighbourhood.

7781. It is the exemption of other districts, so to say, which astonishes you rather than the affliction of Wrekenton?—Yes; there were parts of Gateshead quite as dirty and far more crowded than Wrekenton, which were not touched by cholera at all at that period. Why it should attack Wrekenton as it did, and leave Gateshead, in many of its localities, almost entirely exempt, is a question which I cannot attempt to explain except from mere epidemic influence.

7782. Had anything been done in the way of cleansing the town of Gateshead, as had been done in Newcastle in consequence of the Irish fever in 1847-8?—Something had been done in a temporary way, but it was not kept up at all.

7783. Also in 1848 and 1849 you had recently got the Whittle Dean water, and had an abundant supply?—Yes, at that period we had.

7784. Do you think that those extempore measures of cleansing and that abundant supply of good water may have had an effect in securing parts of Gateshead against a very severe visitation of the disease, while Wrekenton, which did not enjoy that abundant supply of water, and which had not probably had the same extent of cleansing applied to it, suffered very considerably?—I am not prepared to say that that difference would be produced merely by those circumstances.

7785. (*Mr. Bateman.*) Do you know what the state of the water supply was in Wrekenton?—I apprehend that they would only be supplied from private wells. They had no public source of supply.

7786. Do you know the quality of the water there?—It is excellent water.

(*Mr. Town Clerk.*) It is from a free-stone head.

(*Mr. Brady.*) Whether the supply is abundant I cannot say.

7787. (*Chairman.*) I remember that Dr. Headlam in his report to the fever hospital in Newcastle, 1850, distinctly stated that in his judgment the lightness of the outbreak of cholera there had been owing to those two circumstances, namely, to the extempore measures of cleansing adopted in consequence of the Irish fever and to the abundant supply of water; and I also remember that in a pamphlet, entitled "A History of the Water Supply "of Newcastle-upon-Tyne," it was stated that the lightness of the outbreak of cholera had been generally ascribed to those two circumstances. I wish therefore to have your opinion as to whether the similar circumstances, which appear to have prevailed here also, may not have contributed very much to the lightness of the outbreak in Gateshead, while the absence of those circumstances in Wrekenton may have suffered the disease there to take a more virulent form?—I can only take upon me to state that they were two sources of exemption. I do not think that they were the only important ones.

7788. But you think that they would have had their influence?—Yes.

7789. (*Mr. Bateman.*) An ameliorating influence?—They must, more or less, have had an ameliorating influence upon the public health.

7790. (*Chairman.*) With reference to the question of importation from abroad, we have had testimony on the other side of the water to this effect, that there was no evidence to show that this disease had been introduced into this country in any way by contact; or that the first cases here had arisen from a connection with ships or sailors from infected localities; that the importation, such as it was, must have come through the atmosphere, and that there had been no such importation as any sanitary cordons or quarantine regulations could have resisted. Is that your opinion?—Quite. In fact I believe you can lay down very few laws for it; it seems to have a law of its own. The way in which South Shields was preserved month after month, when North Shields was suffering largely from the disease, is a circumstance which you cannot easily explain; especially considering that there was a constant intercourse between the two towns.

7791. (*Mr. Bateman.*) Were the circumstances of the towns in other respects identical?—I think almost entirely so. I should say South Shields was, sanitarily considered, the worst of the two; and yet I believe there was not a case there within six months after its appearance in North Shields.

7792. Was there anything in the state of the wind at that time?—I do not reccollect anything particular. We seldom have a long prevalence of northerly winds, which is the only wind that could waft it across the river. The same may be said of other districts. In 1831-2 we had cholera in Gateshead to a very alarming extent; and a short time afterwards, when there was a general strike among the colliers in this district, a large number were imported from the midland counties, and were brought down to the south side of the river to Friars Goose Colliery. The cholera broke out among them, but very few of those resident in Gateshead during the original attack suffered from it at this time, while a number of the new comers were swept off. In fact, it scarcely seems amenable to any recognized law, either in its outbreak or treatment.

7793. (*Chairman.*) Surely it acknowledges that one law of locality?—It does seem to localize itself in particular districts.

7794. That would suggest to you, would it not, that to a considerable extent at least it is dependent upon predisposing local causes?—To a very great extent it must be so; but there are a variety of circumstances, which it is very difficult to explain upon that ground alone. When it was spreading at Hull, Sculcoates, Leeds, and Huntslet, to such an extent as almost to paralyse the energies of the inhabitants, there was scarcely any trace of it here; and in the earlier attacks, when it was spreading in the neighbourhood of Birmingham to a great extent, there was nothing of it in the town itself. These are circumstances which almost set at defiance any reasoning as to its origin or career.

7795. What I understand you to say is that the wandering of the disease is more or less mysterious, but that, when once the disease makes its appearance, the virulence of it is pretty much dependent on certain local causes?—It requires predisposing causes for the full development of it no doubt.

7796. You would confirm the opinion, that, when the disease has made its appearance, it will be virulent or mild according as you have or have not certain local conditions co-operating with the ultimate virus, if such there be?—Yes, I think that is to a great extent correct.

7797. (*Mr. Bateman.*) Then I take it your opinion comes to this: that by a proper attention to water supply, cleanliness, ventilation, and to other preventive measures you may render a town materially less liable to the attacks, or at least the virulent attacks of cholera than before?—No doubt of it at all.

7798. (*Chairman.*) Your practice has taken you for some years past into all parts of the town?—Yes.

7799. Have you had an opportunity of observing intimately the form of house-construction here?—Yes.

7800. Is it the fact that in the lower parts of the town a very considerable proportion of the houses are built in what we may call blind alleys; in narrow thoroughfares, closed up or covered over at one or both ends, with all the houses built back to back?—To a very serious and injurious extent. Even in the upper parts of the town also that statement will apply in some degree.

7801. Should you say that generally throughout the borough a considerable portion of the houses occupied by the poorer classes is built back to back?—I should think it would apply very generally except to the more recently built houses: these are perhaps scarcely liable to the same objection.

7802. Have you also seen cases, in which the house, instead of being built back to back with another, is built with a damp bank of earth at its back or side?—Yes, there are places where that will apply too.

7803. The first arrangement of houses back to back, impeding and preventing a thorough ventilation, would be a very unfavourable form of house construction in respect of health, would it not?—Yes.

7804. But when you take the other case, where a house is built back to back with a wet bank, that would be a still more unfavourable form of house construction, would it not?—Undoubtedly. And there is another very unfavourable circumstance, viz., the

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depositing of immense masses of filth and refuse in the quarries which have been recently worked in the town, and the conversion of ground thus levelled to building purposes. Now you cannot imagine that to go on without a very serious mischief accruing when the foundations of those houses have to be laid.

7805. Do you mean that houses have been built upon the top of refuse heaps which have been filled into disused quarries?—Yes; perhaps to the depth of twenty or thirty feet; and after a time this will be converted into building ground.

7806. You would not consider that at all a desirable foundation for a house?—Anything but desirable, I should think.

7807. Do cellar dwellings also prevail to a certain extent in Gateshead?—Yes.

7808. Have they become more common of late years than they were formerly?—Yes. I think it is an increasing evil.

7809. I suppose you have a general knowledge of the nature of the geology and soil here?—I have some knowledge of it.

7810. I have understood that in many parts at all events you have on the surface a loam approaching to a clay, with habitually a very impervious clay below; is that the fact?—It is.

7811. I need hardly ask whether such a soil, except it were well drained, would be damp and prejudicial to health?—Certainly it would.

7812. And the existence of cellar dwellings in such a soil, when undrained, would be eminently unfavourable to health?—Yes; the very walls of the cellars would be against this loam and clay to a considerable extent; but of course where they have cellars they would excavate down to the rock in the larger proportion of instances.

7813. (*Mr. Bateman.*) The rock comes near the surface?—Yes, in many cases. In forming a drain in High Street, the workmen had to cut through the solid rock.

(*Mr. Town Clerk.*) From this point all the way up the street the drain was carried along the rock, with the exception of a small piece opposite here (*showing the same on the map*).

7814. (*Chairman to Mr. Kell.*) In fact, then, within a quarter of a mile of the river, at ordinary sewer depth, you come to the rock?—We do, indeed, at much less than that; as soon as ever you reach the table land.

7815. (*Mr. Bateman.*) Is there clay and loam on the top of it?—It is clay mixed with sand. On the site of Gateshead churchyard, it is a strong clay on the top of the hill near the river, and on the other side, though the distance is so short, it is a sand.

(*Mr. Brady.*) But still the argument will apply, because the sides of the cellars will, in all probability, be built against the bed of clay and incur considerable dampness.

7816. (*Chairman to Mr. Brady.*) Taking such a nature of soil, and assuming, as I believe will be proved, that there exists very little drainage, would you doubt that the walls of the houses also would be likely to absorb the moisture into their porous brick-work, and in that respect also to become damp and unfavourable to health?—There are certain localities in which that will apply; but I should say, generally speaking, that in the upper stories of the houses above the cellars the walls were dry.

7817. Excluding notorious places like Pipewellgate and Hillgate, you have not noticed much damp?—No, I think not.

7818. But the want of ventilation arising from the bad form of house construction is a serious evil?—It is a serious evil, no doubt.

7819. And prevails pretty extensively throughout the town?—Among the houses inhabited by the working classes particularly; and I will go even beyond that. I think many of the shopkeepers live in situations where the houses are built so nearly back to back as to afford very little opportunity either for getting away the refuse or for thorough ventilation.

7820. Even where you cannot say that thorough ventilation is impossible, it is still so impeded as to be excessively difficult?—Yes.

7821. You have no intimate knowledge of the sewers and drains here?—No, I have no practical knowledge.

7822. With reference to the houses into which your practice has led you, are you aware whether or not they suffer from the want of proper domestic conveniences. I am speaking in the first place of the poorer classes?—Yes, I should say that they do so very generally.

7823. The six medical gentlemen to whom I have alluded, in their report to Mr. Rawlinson, state, that "Considerable injury may reasonably be expected to arise "from the want of a sufficient number of privies. In some portions of the town none are "provided; in other portions, such as in Hillgate, Oakwellgate, &c., there is frequently "only one privy common to twenty or thirty families, and these are in such an abomi-"nable dirty condition as to excite surprise that they should ever be used. There are no "public necessaries." Is that in your judgment a correct statement?—Yes, I believe it is.

7824. Did it apply in 1853 as much as in 1849?—In the same localities it did.

7825. The same gentlemen also state, that where these conveniences do exist they exist in very unfavourable situations and in very filthy states. They say, it is not unfrequent to find buildings, so to say, erected over them, so that in one sense they may be said to be under or within buildings; and that the effluvia arising from them are such as to

contaminate the air very seriously. Does your experience confirm that?—I do not recollect cases exactly parallel; but it is quite possible that it may be so in the lower parts of the town. Yes, I recollect now that that is correct.

7826. There are some places at all events to which within your knowledge it applies?—Yes.

(*Mr. Town Clerk.*) And many of these are modern places.

7827. (*Chairman to Mr. Brady.*) Can you form any judgment as to the percentage of the population that may be destitute of proper domestic conveniences in this respect?—I have not considered it so as to come to any definite conclusion upon the subject, but it must be a very large proportion, because it prevails to the greatest extent in the most densely populated parts of the town.

7828. Do you think that one-half of the poorer population, if not totally destitute, is exceedingly ill provided in those respects, or would that be an over-statement?—I question whether it is an over-statement. I think it is very likely that it is so.

7829. Are you aware of any instances in this borough in which the want of those proper domestic conveniences has led to the population making use of cellars and rooms, and so on, as privies and ashpits. Have you ever, in your own experience, come across any such cases?—No, I do not think I have.

(*Mr. Hewitt.*) There is a house now in Oakwellgate Lane, where people were living very recently indeed, in which the closets were filled with house refuse to such an extent that the doors were nailed up; while other portions of house refuse were deposited in the garret till it fetched the ceiling down. I have not seen it myself, but I have sent a man down within the last few days who will corroborate what I say. I have had that from him this morning.

7830. (*Mr. Bateman.*) People were living below the garret at the time?—Yes; and a portion of the house, I dare say, is inhabited now.

(*Mr. Brady.*) I ought to observe that my practice of late years has not led me so much into these places.

(*Mr. Hewitt.*) The deputy landlord is here, Mr. Rankin.

7831. (*Chairman to Mr. Rankin.*) Are you acquainted with the house to which that gentleman alludes?—I am.

7832. Is there any room in it which has recently, or at any time, been used as a place of deposit for excrement and filth?—No, nothing of the kind.

7833. Was any closet so used?—The closets are unknown to me. I cannot say. There are no tenants in it now; they were all put out.

7834. (*Mr. Bateman.*) Why were they put out?—They had fourteen days' notice; they went out on Monday.

7835. Till within the last week then there were tenants living there?—There was one there, I believe, last Monday, and she would not go out.

7836. (*Chairman.*) However, what I understand you to say is that, as far as your knowledge extends, no room in that house ever was used in this way for the purposes of a cesspool, and that you do not know of any closet ever having been so used?—I do not know of any. If it was done, it was unknown to me.

7837. (*To Mr. Brady.*) Have you, in your visits to these houses, seen the utensils here called "kits," to which the people, in the absence of proper domestic conveniences, habitually resort?—Yes; there are districts in which I have seen that some years ago.

7838. Are there any districts here in which habitually, in going into a house or a room, you have seen on the stairhead or in the corner of the room a utensil of that kind, more or less full of excrementitious matter?—In some parts of the town they have no other means of getting rid of such matter.

7839. And in those parts of the town you would habitually see it?—I cannot exactly call instances to mind, but it is quite certain that it is the case.

7840. And in those houses where privies and ashpits have existed, have you found or known these conveniences to be in a proper condition?—Quite as frequently in an improper one.

7841. (*Mr. Bateman.*) I suppose that every waste plot of ground almost in the neighbourhood of these premises is everywhere spotted over with excrement?—I do not know that I can say that exactly.

7842. (*Chairman.*) There are, however, some such places in Gateshead, no doubt?—Yes.

7843. We have, ourselves, seen one or two slopes looking on to the river which are obviously used for the deposit of the contents of kits and of every other kind of refuse?—For aught I know it may be so now; but, I recollect some years ago, in passing from Church Walk down to Hillgate, some of the places were literally nothing better than running depôts for filth of this sort.

7844. With regard to Pipewellgate and Hillgate and so on, are any of the houses there what may be called dilapidated and dirty houses?—Not fit for human beings to live in at all.

7845. Exceedingly dirty, calling for whitewashing and purification of a somewhat extensive nature to render them even tolerably clean?—Yes; there is very little inducement to a person going into a house of that kind to try to keep it clean; they hardly can do

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it, I apprehend. A large proportion of them are not fit for human residences; that is the plain English of the matter.

7846. Is it true that there are districts in this town in which the want of proper domestic arrangements is so great, that it is almost a hopeless task to endeavour to keep the house clean?—Yes, I believe it is.

7847. That in fact, no cleanliness of habits, and no desire for cleanliness on the part of the population would avail to keep those residences in a sweet and wholesome condition?—I do not believe persons could be found to live in those houses who really would take the pains to keep them clean; such persons would locate themselves elsewhere where they could do it with less difficulty. It is the very refuse of the town only, people who care very little about cleanliness, either personal or domestic, who inhabit those places.

7848. Are you aware of the circumstances relative to the crowding in these parts; is it, for instance, habitual for whole families to live and sleep, cook, eat, and wash, and everything in a single room?—Yes, in innumerable instances.

7849. Have you known overcrowding proceed to a greater extent than that; for instance, to the sub-letting of a corner of such a single room to another family?—I cannot charge my memory with actually having seen such cases of late years; they did, however, occur in former years; and the lodging-houses, especially, were crowded to an enormous extent.

7850. Do you think that this kind of overcrowding prevailed to any considerable extent in August 1853?—Yes; I have no doubt it did.

7851. (*Mr. Bateman.*) Would that be a period of the year in which more than usual overcrowding would exist?—I do not know whether it would or not. I should almost question it. August would be a period of the year, when many of the Irish probably would be out in the agricultural districts. It was in September, I think, that the cholera broke out here recently.

7852. (*Chairman.*) They would hardly come in from their harvesting work till September and October?—No; I should think not in this district. I should question whether there was more overcrowding here than usual; but there is a very large amount of it at all times.

7853. More than is conducive to public health?—Yes.

7854. Do you remember the description of Pipewellgate and Hillgate, which is given by the six medical gentlemen in their report to Mr. Rawlinson?—I do not recollect it just now, though I have read it; but I am quite certain they can say nothing too bad of it.

7855. They state that Pipewellgate is about 330 yards in length; that it averages scarcely eight feet in breadth; that it contains a population of about 2,000; that a large proportion of the houses there are built back to back, with very limited yards behind them, having very imperfect ventilation; the air being strongly contaminated by the effluvia from privies and middens, and the rooms very destitute of light; also that the rooms are rendered damp and offensive from the fluid parts of the contents of the ashpits penetrating the walls, and so on?—To the lower parts of the town I have no doubt all that will apply.

7856. In your judgment that description of Pipewellgate and Hillgate is not overdrawn?—No; I think not at all.

7857. We had, on the other side of the water, exceedingly strong opinions expressed, as to the almost impossibility of rendering certain parts of Newcastle properly habitable, except by abolishing the existing structures and building them up again. Now, do you think that there are any parts in Gateshead which are so bad that it would be desirable to issue a similar recommendation with regard to them?—Yes; I could put my hand upon a number of them.

7858. (*Mr. Bateman.*) Mr. Lee, the engineer, recommended the bombardment of one considerable portion of Newcastle?—If you keep the inhabitants out of the way, there are many parts of Gateshead that you could sweep away with much benefit. There is one part which has not been mentioned yet, called the Island, where the most horrid nuisances exist, and which is as bad as almost any part of the town; that is the part between the carriage road, and the footpath, from the Tyne Bridge.

7859. (*Chairman.*) I suppose many of the houses there are very old?—They are in a very sad state.

7860. And in a very dilapidated condition also?—Yes.

7861. You could hardly make the walls of those houses fit for the walls of a human habitation except by building new ones?—Just so; and many of the staircases are so dark, that you cannot see to get up them without a candle; there being no ventilation whatever, and no light even admitted to the staircases in many instances.

7862. We have had evidence on the other side of the water, from two or three of the five parochial surgeons, that not unfrequently at noon-day in summer they had to take a candle to see their patients in some of these miserable localities. Now do you think that that prevails to any extent on this side of the water also?—I should not think to any great extent; but I quite believe that in some of the places which I have alluded to, they could not find their way upstairs except by sheer groping. They might do it by that means, but many of the staircases are in such a dilapidated state, that you might as easily fall over the bannisters as not.

7863. To a certain extent, then, the same state of things exists here as on the other side of the water?—No doubt of it; the condition is very much identical.

7864. Speaking generally of the house accommodation provided for the poorer classes of Gateshead, do you think it is in such a state that it would have been desirable for the Town Council or the Board of Health to avail themselves of any powers, which any public Act might give them, for the purpose of erecting what we may call model lodging-houses for the accommodation of those poorer classes?—I have no doubt it would be a very great blessing to the town.

7865. It would have been desirable if they had done so?—Yes.

7866. With regard to what we may call nuisances, and to which allusions are made in many parts of Mr. Rawlinson's report, such as slaughter-houses, the carrying on of offensive trades, smoke nuisances, and so on, have you noticed any such?—Yes, they do exist very largely.

7867. The statements here made by Mr. Rawlinson in 1849 would still have been more or less correct in 1853?—I should think there has been very little alteration in the last four years.

7868. Then as to paving, Mr. Rawlinson's report implies that there is a great want of paving, and the statements put in as evidence before Mr. Rawlinson also imply the same. They say:—"Several of our streets, courts and entries are not only undrained, but "remain unpaved and uncleansed, and without any side channels to carry off the liquid "matters; so that in wet weather they become almost impassable from ruts and filth, "the inhabitants having no other method of disposing of their refuse matter, excrement, "&c., but by throwing them into the streets and lanes, where they spread, become "decomposed, and evolve a most disgusting odour, more particularly when the weather "is warm and close." Was that in any degree, and if so, in what degree, true of Gateshead in August 1853?—As regards the smaller passages and lanes, I should think it would apply with equal force in 1853 as in 1849; but as regards the broad streets I should think there has been a very considerable improvement both in the draining and paving. Some of the streets then entirely undrained and unpaved have since then been attended to in those respects.

7869. The improvement has been in the wide thoroughfares?—Yes.

7870. But in the narrow courts, lanes, and entries, in the worse provided places, which would therefore more urgently require that additional paving, cleansing, and so on, you do not think that any material improvement has been made?—No; I question it.

7871. You have almost answered the question as to scavenage in that answer; the scavenage remains deficient in these worse provided places?—Yes; I think there is a general deficiency there; not so much in the cleaning of the streets as in the removal of the refuse when it is got together.

7872. Can you say that you have noticed recently what might be termed considerable accumulations of filth in those narrow courts to which your practice may have led you?—Yes, several.

7873. As lately as August 1853?—As lately as February 1854.

7874. I suppose you would not doubt that the presence of such accumulations, if any such existed in August and September 1853, will have had an obvious influence in aggravating the virulence of the recent epidemic?—I scarcely see how it could be otherwise.

7875. With regard to burial grounds Mr. Rawlinson's report and the documents put in before him, express a very unfavourable opinion with regard to the condition of the burial grounds in this town; stating that they were over full, evolving bad odours and malaria, and affecting the public health prejudicially; do you think that was correct in August 1853?—Yes; the churchyard, St. Mary's, was very bad previously to the closing of it. I do not know when that was exactly.

7876. It was under the pressure of the epidemic that it was closed?—Yes.

7877. (*Mr. Bateman.*) That is the church on the top of the hill?—Yes, St. Mary's.

7878. (*Chairman.*) We have sufficient evidence from you to show that, in your judgment at all events, the air was not over-pure; what do you think about the water supplied to Gateshead in September 1853?—I cannot say a great deal for that either. It was not in a pure state at all; so far from it that I dare say, if it had been possible to procure any other water, it would have been used in preference to Whittle Dean water, at all events for drinking purposes.

7879. All people seem to agree that it was discoloured, dirty, or muddy, and bad to the eye in one way or another; in that you would agree also?—Quite.

7880. Some people have said that it had a distinctly offensive smell; did you ever notice anything of that sort yourself?—No.

7881. Did you drink it?—No; I hope not at least.

7882. You could not say whether it had an offensive taste?—No; I cannot say that I ever tasted it.

7883. (*Mr. Bateman.*) Were you in the ordinary habit of drinking it?—We very rarely drank it ourselves, because we had a pump in the adjoining yard.

7884. You did not usually drink it?—No; having water of a purer character, we did not use it except for culinary and cleansing purposes.

7885. You did not give over drinking it on account of its state?—No.

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7886. (*Chairman.*) Is it within your recollection that in the year 1831-32 the reservoir which you had at Carr's Hill here failed, and that the inhabitants had to resort to the Tyne for water?—I do not recollect that circumstance.

7887. It is so stated in the history of the water supply to this town?—I do not recollect it.

7888. At all events in 1849 when the cholera was light you had good water, and plenty of it?—Yes; there was a better supply of purer water at that time.

7889. I suppose you would hardly doubt that the impurity of the water to which you have alluded would, at all events, not have had any favourable effect upon the virulence of the last epidemic?—No; I do not know where the water of the Whittle Dean company was taken from. I believe that it is not got from the river now, but it was I suppose at that time to some extent, in consequence of the failure of their own reservoirs.

7890. I mean the water such as you saw it?—I have no idea myself that it contributed very largely to the spread of the disease; I do not think it.

7891. But still, with what may be called a bowel epidemic, any amount of impurity in the water would have some effect?—In common with other predisposing causes there is no doubt that it would have some influence, but I do not look upon it as a very powerful one myself.

7892. Did you notice any change in the quality of your own well spring water?—None.

7893. No appreciable variation?—None; I am not sensible of anything of the kind.

7894. Do you think that the poorer classes of this town at that time were adequately supplied with water?—No; I do not think they are even yet.

7895. Has any great increase of accommodation with respect to water supply been afforded to them since 1849?—Yes; water has been introduced to the tenemented houses to a great extent.

7896. Then the deficiency of water supply to the poorer classes is not as great as at the time of Mr. Rawlinson's inquiry?—No.

7897. But still it is not quite adequate, if not to their wants, at all events to what they ought to want?—No, they ought to have a much larger supply, and of course it must be considerably increasing with a population increasing to the extent to which ours does.

7898. With respect to the gas, we have had evidence to this effect: that the gas here is not pure; that it spoils bookbindings, and so on; and of course in places where people like shopkeepers use a considerable quantity in ill ventilated rooms, it may have had a certain effect upon the public health generally, but not to any appreciable or traceable degree, especially in connexion with the late epidemic. Do you wish to add anything to that kind of evidence?—No, the gas is not pure certainly, as it should be; it varies.

7899. You concur with that view?—Quite.

7900. Of course it would not be favourable to health to have mixed with the atmosphere which you breathe the products of combustion of an impure gas?—No.

7901. But further than that you would not go?—It evidently has some peculiar properties, for you find that vegetable growth is retarded and almost entirely put a stop to by it. If you bring your plants into your rooms, for instance, a fuschia, you will find that the flowers have all dropped off by the next morning in nine cases out of ten.

7902. Where gas is burnt?—Yes, and even in the hall.

7903. I suppose you have on this side of the water, as on the other, a considerable proportion of what you may call a very low class of population?—Very largely; I should think larger than on the other side. With the extensive manufactures on this side of the river, there will always be a large proportion of the poorer classes.

7904. I mean that beyond the mere labouring people, there is a class on the other side of the water who seem to do next to nothing for their living, and to live one scarcely knows how?—We are very much on a par in that respect. There are large numbers who get up in the morning without knowing where their breakfast is to come from.

7905. And who are very apt to spend what they get in drink and intoxication?—Yes.

7906. In fact there is a large proportion of people whose personal habits are unfavourable to health?—No doubt of it, a very large class.

7907. Taking a more general view, and speaking of the sanitary state of the town as you can remember it for many years past, do you see any considerable improvement, say in the last seven years, in the sanitary state of the town generally?—Yes; the improvement in the last twenty-five years is very decided. There is a marked and important improvement in the leading streets of the town particularly. I question whether there is much improvement in the lower parts, which of course are more obnoxious to disease; but in the upper parts of the town the improvement is very marked indeed; those who have known it for a quarter of a century will agree in that.

7908. In the main thoroughfares chiefly?—The main thoroughfares are vastly improved.

7909. With regard to what we may call the habitual seats of disease, how is it?—I question whether there is much improvement in them.

7910. Mr. Rawlinson in his report in 1849 states very distinctly that "the condition of "the town has not been materially improved since it was inspected and described in "1843 by Dr. Reid." Your opinion is that, limiting the statement to the lower parts of

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the town, and to the parts more generally visited and ravaged by epidemics, it is still substantially correct; and that there has not been much improvement in them?—Very little indeed.

(*Mr. Clephan.*) Will you ask Mr. Brady in what state Leonard's Court was in 1832?

7911. (*Chairman.*) Do you remember the comparative state of Leonard's Court in 1832, and in 1853?—I can scarcely draw a comparison; it was as bad as it could be then, and is so now, and so it always will be, forming as it does a cul de sac inhabited by a poor and wretched population.

7912. You have no connexion either with the Town Council, or with the Board of Health?—No.

7913. Is there any other point on which you wish to give your evidence?—No, I do not know of anything. I shall be glad to answer, so far as I am able, any questions which are put to me.

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WILLIAM JOLLIE, ESQ., M.D., examined.

7914. (*Chairman.*) You are a physician practising in this town?—Yes.

7915. For how many years have you done so?—For ten or eleven years.

7916. On the occasion of Mr. Rawlinson's official visit to this town in 1849 you, in conjunction with five other medical gentlemen, made a report to him on the sanitary condition of Gateshead?—I believe I drew up that report.

7917. Then of course you are familiar with the statements made in it?—Yes.

7918. Do you see any reason to alter now any of those statements?—Not having read it since, I do not exactly know; perhaps my sentiments in some respects might require a little alteration.

7919. It speaks there of an excessive mortality. I have here a paper from the Registrar-general from which it appears that the average mortality per thousand per annum in Gateshead during the last fifteen years has been at least 26·6; and of course, if this paper refer to Gateshead Union, there can be little doubt but that the mortality in Gateshead borough has been much higher: taking it however simply at 26·6, you would, no doubt, consider even that a high rate of mortality?—Yes, it is rather higher perhaps than we might otherwise calculate for the borough of Gateshead, but still not too high when we know the condition of the great mass of the people who are living in the town.

7920. (*Mr. Bateman.*) Not more, you mean, than you might expect?—Exactly.

7921. (*Chairman.*) The mortality is high; but the local conditions sufficiently account to you for that rate of mortality; is that what you mean?—Yes.

7922. You then mention certain local causes, which are potential in raising the mortality of Gateshead, especially in Pipewellgate, Hillgate, and other places. For instance, you refer to the deterioration of the atmosphere by smoke; do you still retain the pinion that that is prejudicial to health?—Still; and to as great an extent now as then.

7923. Do you think that the smoke nuisance had been materially abated between 1849 and 1853?—By no means.

7924. You also refer to the extreme narrowness of many of the thoroughfares, to the confined and precipitous nature of the lanes and alleys, by which ventilation is obstructed and light in a great measure excluded; that observation would still apply?—Yes.

7925. Then you proceed to complain of the structure and arrangement of many of the houses in these lanes, even of those more recently built, namely, in respect of their being built back to back, with such a limited space behind them for conveniences that the ventilation is very imperfect, the air in many of the houses being strongly contaminated by the effluvia arising from privies and middens, and so on; those remarks would still apply, I presume?—Yes; but I think that the buildings which have been put up more recently are somewhat of a better class.

7926. Would you confine your observations to the period from 1851 downwards?—Yes.

7927. Since the Local Board of Health has been in action, you have seen evidences of its operation upon the structural arrangements of the houses erected?—Yes.

7928. You further state that it is by no means unfrequent to find parts of inhabited buildings situated immediately over privies and ash-pits, &c.?—That exists at present.

7929. The effect of such an arrangement upon the health of the people living in the rooms above these places would, I presume, be in your judgment obviously prejudicial in the highest degree?—Yes, and the air is very generally impregnated with poisonous effluvia. In some of the houses in Swinburne Place it is scarcely possible to breathe, in consequence of the houses being in such close proximity to the middens.

7930. You speak also of some rooms being rendered damp and offensive from the fluid parts of the contents of the ash-pits penetrating the walls?—That statement is still applicable at the present day.

7931. Does your practice lead you at all among the class of people inhabiting these houses, or have you merely gone there for the purpose of making investigation?—My practice at that time led me a good deal there.

7932. So that at that time you had considerable practical acquaintance with those parts of the town?—Yes.

7933. And do you still occasionally go there?—Yes, but not to the same extent.

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7934. But you still from time to time renew your acquaintance with those districts?—Yes.

7935. You then speak of cellar kitchens as existing not uncommonly now, and being evidently on the increase; of their being dark, damp, and ill ventilated, containing inmates presenting in general a sickly appearance, more liable to diseases, and recovering from diseases more slowly than those in the upper rooms?—I endorse now what I said then in that respect.

7936. You also say that Gateshead suffered much from the want of sewerage and drainage?—Yes.

7937. Do you see evidence of that to this day?—Yes; but I think there has been a very evident improvement in the sewerage and pavement of the streets.

7938. Within the last four years, *i. e.* since the framing of this report, a good deal has been done in respect of sewering and paving?—Yes, I think there has been a good deal of improvement.

7939. Would your remarks on this head apply chiefly, as Mr. Brady's did, to the main thoroughfares and the better parts of the town?—Yes, to the better parts of the town chiefly.

7940. There has not been much done either in sewering or paving in Pipewellgate, Hillgate, Leonard's Court, or in those places where it is most required?—In Leonard's Court I do not think there has been any for some years. With regard to Pipewellgate and Hillgate they are in the same condition as in 1849.

7941. You then complain of parts of the borough more recently built, such as William Street, Pollock Street, and Russell Street, as being entirely without sewers or drains, and you say, "in places, where there are drains, these latter are often defective and "unserviceable from being choked up by accumulations," and so on?—I think that that condition still exists at the present time.

7942. But I suppose it has improved, especially as regards the presence of accumulations, &c.?—Yes.

7943. You see evidence of the working of the Local Board of Health in such matters as that?—I do not know to what to ascribe it; but my impression is that the town is considerably cleaner, and better cleansed and paved, than it used to be; except in some of the very lowest streets, to which perhaps the Local Board of Health have not yet had an opportunity of attending.

7944. You further say, "Several of our streets, courts, and entries are not only undrained, "but remain unpaved and uncleansed, and without any side channels to carry off the "liquid matters; so that in wet weather they become almost impassable from ruts and "filth;" and that the inhabitants, "having no other method of disposing of their refuse," and so on, throw it on to the streets; that to a certain extent still applies?—Yes.

7945. You say also, "Considerable injury may reasonably be expected to arise from "the want of a sufficient number of privies. In some portions of the town none are "provided; in other portions, as in Hillgate, Oakwellgate, &c., there is frequently only "one privy common to twenty or thirty families," and those in an abominable state, and so on; that is still true, I am afraid?—Yes.

7946. Do you know of any improvement in those respects having been made in the parts most seriously requiring it?—I cannot call to mind that there has been any. The ash-pits, which I have passed, and so forth, at that time, were much in the same condition as they are at present; ashes are thrown about instead of being collected together, and so on.

7947. Do you think that since the date of this report any additional privies or ash-pits have been provided in the places which were then most deficient?—I have not noticed that there have been any such additions.

7948. Do you think you would have noticed it if there had been?—I think I should have noticed it if there had been any considerable addition to the former accommodation.

7949. The report proceeds, "Your committee may now specify some of the conditions "which appear to them most conducive in raising the mortality, more particularly of "Pipewellgate, above that of other parts of the town; which are, the defective breadth of "the thoroughfare itself; the narrowness, darkness, and dampness of the numerous lanes "and courts; the descent of the most disgusting refuse matters thrown out by persons "living on the parts more elevated; the presence of numerous piggeries, the washings "from tripe-shops," and so on, through a long list of nuisances, including "the condition "and overcrowded state of many of the tenements, more especially the lodging houses." Do those conditions, in your judgment, still exist, and still exercise the same influence in raising the mortality of Pipewellgate?—Many of those conditions do exist, and to the same extent; but some of them are in some measure qualified and diminished.

7950. You proceed further as to the rooms being overcrowded at nights; all openings, by which fresh air can be admitted, being stopped up; houses being unventilated; want of personal cleanliness, and so on?—I think that those things are the most powerful predisposing causes of the prevalence of cholera and other epidemic diseases.

7951. You think overcrowding and want of ventilation are among the worst of sanitary evils?—I think that those are far more powerful causes than bad water or want of sewerage.

7952. You also say that fever raged in an epidemic form, that is the Irish fever, in special localities, Leonard's Court, Pipewellgate, and Hillgate, which are all notoriously dirty

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places. Do you still retain the opinion here expressed, that the epidemics which may visit this borough, be they what they may, will generally select the same localities as the chief seats of their virulence?—Yes.

7953. There has been nothing in your experience of the last epidemic to alter your opinion, that in respect of its localization, cholera will follow the same rule as most other epidemics?—Cholera, and fever, and all other contagious complaints will be most virulent in those dirty districts, where the poor more especially congregate, and where there is a deficiency of light, air, ventilation, and food, and where habits of intoxication are most prevalent.

7954. You think that whatever are predisposing causes to typhus or any form of fever will also be predisposing causes in respect of cholera?—Yes; but at the same time none of those causes will produce cholera; they will only predispose the body to cholera or other diseases.

7955. But, supposing cholera to make its appearance, the virulence and the malignity of it would be mainly dependant upon the presence or absence of these predisposing local causes?—Exactly.

7956. When I say "cause," I always mean "aggravating cause," never an originating cause?—Not an originating cause.

7957. You then go into several details which we need hardly follow you through. You say, however, "Leonard's Court is situated in the high part of Gateshead, and is a most "filthy locality seldom free from fever?"—Yes.

7958. Is that still a correct statement?—I cannot speak as to the condition of Leonard's Court for the last three years. I do not think I have been in it once.

7959. I presume that we may take the epidemics with which Gateshead has been visited within the last twenty years to have been pretty generally identical with those which have, from time to time, visited Newcastle?—Yes.

7960. Would you say that the cholera of 1853 has been "unprecedentedly severe?"—I am not exactly prepared to say. I have no statistics before me from which to speak positively. Certainly the mortality was very great; but I can only speak generally.

7961. I think you said that it prevailed very considerably, and perhaps mainly, in the same localities as previous epidemics?—In the same localities chiefly; though I believe it attacked the higher parts of the town on the last occasion more than on any previous one.

7962. That is to say that on this last occasion it extended to localities which had previously been exempt?—Yes.

7963. It ravaged the old seats of disease equally, but it also extended to some new ones?—Yes; it did not altogether localize itself so specially as on previous occasions.

7964. Not so markedly or so obviously?—No.

7965. Would you agree generally in the statement, that the epidemics which have visited Gateshead, including the epidemics of cholera, have prevailed mainly in connection with the want of sanitary arrangements of different kinds?—Yes.

7966. Some years ago at all events, your practice led you a good deal, not only into the lower parts of the town, but actually into the rooms and tenements of the poor population there?—It did.

7967. You noticed the form of house construction prevailing in certain districts, very narrow thoroughfares, houses back to back or built against banks, the existence of cellar dwellings, the want of ventilation, and so on; in your opinion would those be unfavourable circumstances, predisposing such localities to the virulence of any epidemic, including cholera?—Very.

7968. The absence of adequate drainage in a soil varying from strong loam to clay would also, in your judgment, be detrimental to health?—Yes.

7969. The soil upon which certain districts of Gateshead stand is one which eminently requires drainage to make it healthy?—It is very favourable for surface drainage too; but the surface drainage is often obstructed by houses.

7970. In visiting these tenements, have you habitually seen utensils called "kits" about the rooms, and at the stair heads?—Very frequently.

7971. Has your nose also given you indication of privies and ashpits, which have stood in want of emptying and cleansing?—Yes.

7972. Is that a common occurrence?—It is common.

7973. Have you ever noticed the walls of these tenements damp?—Very damp; permeated with water from the ashpits and privies behind

7974. Not simply with pure moisture, but with moisture laden with objectionable matter?—Yes, from the ashpits.

7975. Are there in those districts many of the houses, which in their brickwork and timber are dilapidated?—Many such exist in the old parts of the town. In the Island and in Pipewellgate and Hillgate they are in a very dilapidated condition.

7976. Internally also very dirty, and in want of purifying and whitewashing, &c., to render them even tolerable?—Yes; those things are in fact never attended to.

7977. Single rooms being occupied by entire families?—Yes, by six or eight persons, where there would be only sufficient accommodation for two.

7978. At those times you used often to find lodgers and visitors also in these single room tenements?—Yes.

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7979. You are not, probably, much acquainted with those places now?—I have not been in any of those lodging-houses for a long time.

7980. On the whole, did you then notice a considerable proportion of those tenements, which you would say were unfit for human habitation?—A very great proportion.

7981. Do you doubt that a considerable proportion of them, at all events, still remain unfit for human habitation, and ever will remain so as long as the present houses stand?—Neither Pipewellgate, Hillgate, nor the Island will be fit for habitation.

7982. Do you agree in the opinion which has been given by Mr. Brady, that the general state of house accommodation provided for the poorer classes here is of so very inferior a description, that it would have been highly desirable for the authorities to take advantage of any powers, which any public statute might have given them, for the purpose of erecting model lodging-houses for those poorer classes?—Certainly.

7983. In this report of your own to Mr. Rawlinson, you allude to nuisances in the way of slaughter-houses and offensive trades, tripe-shops, and those sort of things; are they in your judgment much abated?—I think there has been a considerable abatement. There are certain regulations of the Board of Health which have been put in force.

7984. You have seen the benefit of the operation of the Local Board of Health in respect of slaughter-houses?—Yes.

7985. The smoke nuisance, I am afraid, has not been touched?—Not at all; it is rather worse.

7986. With regard to the burial grounds, have you any notion of what the state of them was in August 1853?—The burial ground of Gateshead Church was very much overcrowded previously to its being closed.

7987. That is immediately above Hillgate?—Immediately above Hillgate.

7988. On one side of the Island?—Yes.

7989. And pretty well surrounded by habitations?—Yes quite.

7990. That would not of course have any favourable effect upon the public health?—No doubt of it.

7991. What opinion would you offer to us respecting the water, which was supplied to the people here during last summer generally?—Not being in the habit of drinking that water myself, the condition of it was not brought before my notice particularly.

7992. You habitually use water from some well or spring?—Yes.

7993. Did you notice any variation in the quality of your well water at that time?—No, it was very pure and good.

7994. The Whittle Dean water was never brought under your notice in any particular way?—Occasionally when the supply from this spring has run short, I have had to complain of the quality of the Whittle Dean water, when I have had to use it.

7995. What did you notice about it?—It was not so pleasant to drink; it was not so clear.

7996. It did not look nice?—No.

7997. Did you ever notice any offensive smell?—No.

7998. Or any distinctly offensive taste?—No; it was not so pleasant to drink.

7999. If you had drunk it with your eyes shut, you never would have noticed any offensive taste?—No; but I should have found out that it was not so pleasant as the water I had been previously accustomed to drink.

8000. You heard the question which I addressed to Mr. Brady in respect of gas?—Yes; and I would make the same reply that Mr. Brady did.

8001. You would also agree probably that the population of Gateshead includes a considerable proportion of persons of a very low class, whose personal habits and tendency to spirit drinking, &c., are in themselves an unfavourable sanitary feature?—Yes.

8002. The quality of the population would have to be considered in any judgment to be formed as to the prevalence of the epidemic?—Yes; it would make the mortality considerably higher than in other towns.

8003. The sanitary state of the town in itself is bad?—Yes.

8004. And the results of that bad sanitary state are further aggravated by the personal uncleanliness and bad habits of a considerable proportion of the lower classes?—Yes.

8005. I think you said that you had seen improvements in the main thoroughfares?—Yes; some of our thoroughfares which are in good condition now were, when I published that report, in an impassable condition. Horses and carts would frequently stick fast.

8006. But still the bad condition of a main thoroughfare, where you are not very much exposed to have excrementitious matter thrown into the ruts and holes of the road, would not, of course, have any very material effect upon the public health?—No, I do not think that it would.

8007. So that there might be a very considerable improvement in the macadamising or paving of the main thoroughfares of the town, without very materially improving its sanitary state?—Decidedly.

8008. We shall also, no doubt, have evidence to the effect that a considerable number of main sewers have been made, but that very few house drains have been carried into them; and, of course, sewers without house drains into them would likewise have but a very slight effect in improving the sanitary condition of the town. Setting aside then

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these two points, of which we are aware, do you think that the sanitary state of the town has been materially improved since the date of your report in 1849?—No, I would not say materially, but slightly improved.

8009. No such changes have taken place to your knowledge, as would warrant you in expecting any material diminution in the mortality rates?—No.

8010. Improvements however have taken place?—They have taken place, but not in the very worst parts, where they were most required.

8011. And in several instances you have traced the beneficial results of the operations of the Local Board of Health in respect of lodging-houses and slaughter houses, and two or three other points?—Yes.

8012. Do you doubt that more energetic operations upon the part of that Board would lead to very beneficial sanitary effects, and to an ultimate diminution of the mortality rates?—To a slight ultimate diminution. I do not think that it would be to any very great extent under the most favourable circumstances. There are so many causes in operation, many of which you cannot remove, and especially the most potential of them, viz.: the want of internal ventilation in the dwellings of our working classes, which you cannot prevent.

8013. If you built model lodging-houses you could?—I do not think you could; you would still have overcrowding, and I do not think you can interfere with their rooms.

8014. (*Mr. Bateman.*) I suppose if dirty people are left alone to follow their accustomed habits, they will not improve much?—They will not.

8015. But if clean houses are built for them?—I am afraid that many of those parties will take their dirty habits away with them.

8016. They will not be so bad as before?—No.

8017. (*Chairman.*) You do not expect to wash the blackamoor white in one generation?—No.

8018. Is there any other point on which you would like to offer us any evidence?—Nothing occurs to me at present.

8019. You have not materially altered your original view, as to the dependence of the ravages of cholera upon certain predisposing local causes, which may be removed by proper sanitary measures?—I think the mortality might have been considerably diminished if we had been in a different sanitary condition to what we were in.

8020. (*Mr. Bateman.*) You agree with nearly everybody else, that very much depends upon the good state of the town?—Upon the good state of the town, and upon personal habits. Perhaps one of the greatest causes of the late great mortality was the neglect of parties to apply sufficiently promptly when they were merely labouring under premonitory symptoms; indeed many never sent for medical advice till they were actually moribund.

8021. (*Chairman.*) You had, I suppose, the house-to-house visitation system here?—I believe we had; but I had nothing to do with the carrying of it out.

8022. You have no doubt, I suppose, of the beneficial effects of that system ordinarily?—I have no doubt that, if it were properly carried out, it would be beneficial.

8023. Was it properly carried out here?—I cannot say; during the prevalence of the epidemic I had not sufficient time to attend to my own duties.

8024. You do not mean to offer an opinion either way?—No. I have no doubt that house-to-house visitation would be beneficial, if properly carried out.

8025. Prompt treatment is sometimes nine-tenths of the battle in cholera?—Yes.

8026. (*Mr. Bateman.*) Still preventive measures are better than curative measures?—Decidedly.

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8027. (*Chairman.*) You are surgeon to the Gateshead Union, I believe?—To the north district of it, and to the Union workhouse.

8028. Have you been long resident here?—About a year and a half.

8029. Have you any notion of the analysis of the mortality during the late outbreak in respect of ranks, as, for instance, how many died in what you would call the class of gentry?—I have not; my practice at that time was principally among the lower class.

8030. Two-thirds of the mortality no doubt will have been among that lower class, in the class of people who would take relief in sickness from the parish?—Yes.

8031. Did you know any cases of people in the class of gentry dying from it?—No.

8032. But some very respectable people?—Yes; but none under my own care.

8033. But you do not know of any case of a person in what you would call the rank of a gentleman, or a gentlewoman?—No.

8034. Do you think that here a considerable number of the gentlefolks left the place, as they did in Newcastle?—I think many did.

8035. Your practice for the last year and a half will have taken you into every court probably, and into many of the houses of all the poorer districts in this town?—I should say into the whole of them.

8036. So that you have a year and a half's intimate acquaintance with the poorer and worst districts of the town?—Yes.

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8037. You would confirm the evidence which has been given us as to the existence of a great number of narrow blind courts, with houses built back to back or into banks, with cellar kitchens ill-ventilated, in want of draining, paving, and all that sort of thing? —Yes.

8038. With reference to the localities specially indicated upon this map, which has been admirably prepared by Mr. Borough Surveyor Hall, can you tell us anything of the particular spots in which the mortality seems to have been greatest.

(*Mr. Hall.*) I may state that I am indebted to Mr. Wilson and to Mr. Clephan for the numbers of deaths, and the localities where these took place; it is to them indeed that you are indebted, more than to me. I made the map; but it is from them that I collected the information which gives to that map its peculiar value.

8039. (*Chairman.*) We are very much indebted to both those gentlemen as well as to yourself. (*To Mr. Wilson.*) You know Victoria Street?—Yes.

8040. I see that there were no less than fifteen deaths in that small street; can you give us a notion how many houses there may be there?—I think about forty houses perhaps.

(*Mr. Clephan.*) About thirty-three or thirty-four, I think.

8041. (*To Mr. Wilson.*) Are those houses mainly tenemented houses?—Almost entirely tenemented houses.

8042. How many rooms would there be to a house?—They are mainly two-storied houses, with six or seven rooms in each.

8043. Have they cellar kitchens there generally?—Yes.

8044. Including those cellar kitchens there would be from six to seven rooms in a house?—Yes.

8045. Are most of those rooms occupied singly by whole families?—In some cases two and in other cases one room is so occupied.

8046. What proportion of the number of tenements, do you think, consists of two rooms each?—I cannot say, but I think about one-third would have two rooms.

8047. Supposing we computed that in those six or seven rooms there would be two families each occupying two rooms, and two or three occupying one room each; that would be a liberal computation?—Yes.

8048. And that would give about four or five families to a house?—Yes.

8049. Which would make on that computation something like 150 families in the street? —Yes.

8050. So that the population would run on to about 700.

(*Mr. Clephan.*) No; the population is, I think, about 500.

8051. (*To Mr. Wilson.*) In that street, whatever may be its exact population, there were fifteen deaths?—Yes.

8052. What information can you give us as to the state of the houses in that street, firstly, in respect of the west side which looks away towards William Street: are they open and airy behind?—Behind the houses there is a very large cow-byre.

8053. On a triangular shaped piece of ground?—Yes.

8054. Have you any notion how many cows are kept there?—I do not know; but I believe there was a large collection of filth there about the time of the cholera.

8055. I see there is a small lane apparently running between Victoria Street and the wall of the cow-byre?—Yes.

8056. Do you know the breadth of that?—Eight or ten feet.

8057. What is the height of the wall of the cow-byre?—I cannot say.

8058. Are the walls high enough to impede the ventilation to the back?—They would not interfere very materially with the ventilation; they are beyond the yards of the houses.

8059. I do not exactly see from this plan that the houses have any yards. Have they any at the back?—They have small yards.

8060. (*Mr. Bateman.*) And each of them, I think, a necessary, and a dustbin?—Yes.

8061. (*Chairman.*) Is there any sewerage there?—There is drainage, but it is imperfect.

8062. Is there any arrangement for the removal of fœcal matters in suspension by water?—No.

8063. There is a surface drainage?—Yes, and there are some other drains, but they are imperfect; they do not seem to act very well.

8064. Do you know what Victoria Street is built upon?—I believe principally upon loose rubbish which has been filled into an old quarry.

8065. (*Mr. Bateman.*) What kind of rubbish?—It is general rubbish from the town.

8066. Street-sweepings, and all kinds of filth?—Yes.

8067. Where the fœcal produce of the town is not carried away in water, of course the town refuse contains all kinds of filth?—Yes.

8068. Have you ever noticed any flooding of the surface there?—The back lane is imperfectly paved, and generally speaking much water is retained, and also in the street in front. The entrance to the cellars is from the yard; and frequently at the bottom of the steps going down to them there is a collection of water.

8069. (*Chairman.*) Is that just at the door of the house?—At the door of the house; and there is a grating at the bottom of the steps too to drain that off, but from some imperfection of the drain, it frequently does not act.

8070. (*Mr. Clephan.*) Did the first death in Gateshead occur there?—Yes, immediately opposite the cow-house.

8071. (*Chairman.*) Do you know when Victoria Street was built?—No.

(*Mr. Clephan.*) Since 1849.

8072. Can you recollect what state the privies and middens there were in about the time of the cholera?—They are generally foul, but not in an absolutely filthy state.

8073. Are the walls there generally solid?—I think so.

8074. The houses themselves are pretty good?— The cellars are damp.

8075. Did you ever notice the first or ground floor of a house damp?—No.

8076. And the houses altogether are pretty solid and weather-tight?—I do not think they are very substantially built; but I cannot say much about that.

8077. (*Mr. Bateman.*) As compared with those in the older parts of the town they would be good houses?—Yes.

8078. (*Chairman.*) No part of Victoria Street is built against a bank, is it?—No.

8079. It stands clear, with the exception of the cellar kitchens which are below the surface?—Yes.

8080. With reference to the other side of Victoria Street towards Grosvenor Street, you seem to have a narrow lane running between probably two rows of privies and middens, and entirely surrounded by houses?—Just so.

8081. On that side of the way the buildings constitute a kind of oblong well, at the bottom of which will stagnate all the effluvia rising from that double row of middens and privies, belonging to the one side of Victoria Street, and the other side of Grosvenor Street?—Yes.

8082. I suppose your remarks as to drainage apply to both sides of Victoria Street?—To both sides alike.

8083. Then the condition of Victoria Street is this, that on one side of it, and separated only by a very narrow lane, is a very large cow-byre, frequently in a filthy state; and on the other side is a double row of privies and middens, so surrounded by buildings as to have but little chance of ventilation; that there is no sewerage on either side; that the surface drainage is defective, and that pretty nearly every room is a sleeping and living place for an entire family?—Yes.

8084. Given those local conditions you are not surprised, I presume, to find that there was a considerable mortality there?—By no means.

8085. What is the class of people residing there?—The cellars are, a great many of them, occupied by poor Irish; the upper rooms by mechanics.

8086. Did you ever notice anything which you would call marked uncleanliness of habit in the upper rooms?—Not in the upper rooms, and the back yards are kept pretty cleanly.

8087. You might say of the greater part of the population there that they were decent, and decently cleanly people?—Yes.

8088. That much of the mortality could not be ascribed to any personal habits of uncleanliness?—The principal part of the deaths which I had in that street were in the cellar kitchens.

8089. Can you recollect, out of the fifteen deaths, how many were in the kitchens and cellars?—I can recollect six or seven just now.

8090. May there have been others?—Yes, there were more than that.

8091. When you say six or seven out of the fifteen, you are understating the mortality in the kitchens?—Quite so.

8092. And these are damp; are they flagged?—Yes.

8093. Are there any bare earthen floors?—No.

8094. (*Mr. Bateman.*) The first death occurred, I think, on a first floor?—On the first floor.

8095. (*Chairman.*) Do you remember anything about the case?—No; it was a case of Dr. Jollie's.

8096. Then in the next street, Grosvenor Street, parallel to and adjoining Victoria Street, there seem to have been ten deaths, while the street itself seems to be situated in much the same way, between two oblong wells of stagnant effluvia, each containing all the exhalations from a double row of privies and middens; but how as regards the sewerage and drainage in Grosvenor Street; is it better than in Victoria Street?—Much in the same state. Many of the houses in Grosvenor Street, however, are occupied by single families.

8097. Then am I right in supposing, from this plan, that the advantages which Grosvenor Street has over Victoria Street are that it is a little wider and more open, better ventilated, and that it is less crowded internally?—Yes; those are the only advantages.

8098. In other respects the description of the one is mainly the description of the other?—Yes.

8099. (*Mr. Bateman.*) Is the ground upon which it stands the same?

(*Mr. Foreman.*) No.

8100. (*Chairman.*) Is it built on town refuse?

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(*Mr. Foreman.*) No

8101. (*To Mr. Wilson.*) Then we come to William Street, where I see there were five deaths, and which lies between the cow-byre, of which we have already spoken, and a similar oblong well of buildings, containing a double row of privies belonging to William Street and Pollock Street respectively?—Yes.

8102. Is William Street built upon rubbish?

(*Mr. Foreman.*) No.

8103. (*To Mr. Wilson.*) Is William Street occupied chiefly in tenements?—Chiefly.

8104. Then the difference between William Street and Victoria Street would mainly consist in the nature of the ground on which the houses stand?—William Street is better paved.

8105. Is there any difference in the scavenage of these places?—No. On one side of William Street only there are cellars; on the north side, not on the south side. I recollect that one or two of the five deaths occurred in those cellars. That also faces the cow-byre.

8106. Nearly half the entire mortality was in the cellars on the one side of the street only?—I think two out of five.

8107. Taking these three contiguous streets, Grosvenor Street, Victoria Street, and William Street, does the mortality, in your judgment, seem to have been pretty fairly apportioned to the sanitary defects of each?—I think so.

8108. Victoria Street is the narrowest, is built on the worst foundation, is wholly occupied in tenements, has cellar kitchens on both sides, and had the greatest mortality?—Yes.

8109. And each of the other cases has some points of preference in a sanitary point of view over Victoria Street, and had a less mortality?—Yes.

8110. (*Mr. Bateman.*) Take the case of Mulgrave Terrace close adjoining it, and forming the third side of the triangle between Mulgrave Terrace, Victoria Street, and William Street; there appear to have been two deaths in that part of Mulgrave Terrace?—Yes.

8111. What are the circumstances of those houses?—The backs of the houses also face the cow-byre, but the class of houses is much better.

8112. Are they inhabited by single families?—By one family each.

8113. (*Chairman.*) Is Mulgrave Terrace also quite open to the north west?—Quite open.

8114. On a steep slope looking down to the river?—Yes.

8115. Presenting, therefore, altogether marked sanitary advantages over the other places?—Yes.

8116. (*Mr. Bateman.*) Upon what ground does Mulgrave Terrace stand?

(*Mr. Foreman.*) Solid ground.

8117. (*Chairman to Mr. Wilson.*) Then we may take Melbourne Street, in which there were six deaths. What is the character of the houses in Melbourne Street?—They are a little better, perhaps, than those in Grosvenor Street.

8118. Which, in their turn, were better than those in Victoria Street?—Yes; the houses are of a similar class, and more of them are occupied by single families.

8119. Are the houses in Mulgrave Terrace generally occupied as self-contained houses?—Yes, I believe the whole of them are.

8120. (*Mr. Bateman.*) Melbourne Street is the street you live in?—Yes.

8121. I see there was a death very near your own door?—Next door.

8122. (*Mr. Clephan.*) Was it near a slaughter-house?—It was very near a slaughter-house. The back of the house in which the case occurred would be opposite to it.

8123. (*Chairman.*) Taking the whole of the larger triangle between Melbourne Street, Mulgrave Terrace, and the thoroughfare which in one part is called William Street and in another Ellison Street West, the mortality, as indicated on this map, taken in connexion with the local circumstances and conditions explained by you, seems to show that the mortality has been pretty accurately apportioned to sanitary defects?—I think so. I may also state that one death in Melbourne Street, opposite to my own house, occurred upstairs, in a room immediately above a slaughter-house, which was not in a very good state I think at the time. The under room was a slaughter-house.

8124. (*Mr. Bateman.*) How do they there get rid of the refuse which accumulates in the slaughter-house?—I think much had accumulated in the room itself.

8125. (*Chairman.*) Under the room where the death took place?—Yes.

8126. Let us take the next place?—That is Brunswick Terrace, which is immediately behind Melbourne Street, to the east of it.

8127. (*Mr. Bateman.*) There were four deaths there?—Yes.

8128. (*Chairman.*) What is the condition of Brunswick Terrace?—At the lower end of the terrace the houses have cellars.

8129. Do you mean north or south?—At the north end.

8130. The houses there, I see, exist only on one side of the street, for a great part of the way?—For a great distance.

8131. Brunswick Terrace, then, has the advantage of being almost entirely open towards the east?—Yes.

8132. And on the other, or west side, there seems also a considerable gap in the buildings, so that there is through ventilation from Melbourne Street to Brunswick Terrace?—Yes.

8133. What is the class of houses there?—They are two-storied, with cellars, and tenemented also at the north end; and the down-stairs room forms the yard in which are the middenstead and privy.

8134. (*Mr. Bateman.*) The ground floor?—The ground floor; it is completely enclosed.

8135. (*Chairman.*) So that the yard is under the sleeping rooms above?—Just so.

8136. The second storey is not a projection over the yard?—No.

8137. But the wall of the house rises continuously, so as to include the yard?—Just so.

8138. Then, surely, one might have expected a greater mortality than four in that street?—There was a large amount of sickness in the place.

8139. (*Mr. Bateman.*) But not many deaths?—Not many deaths. In one of those back rooms the yard forms a slaughter-house at the lower end; and it was immediately opposite to that that one death from cholera took place in Melbourne Street.

8140. (*Chairman.*) Then, on the whole, Brunswick Terrace seems to have got off pretty well?—I think so.

8141. It was not so severely visited as one might have expected from your description of it?—That condition does not extend the whole length of the terrace, it is only at the north end.

8142. Leaving this district then, and going eastward to Leonard's Court, in which there appear to have been fifteen deaths, let me ask, in the first place, is Leonard's Court a *cul de sac*?—Yes.

8143. With small courts opening off right and left from it?—Just so.

8144. Which again are *cul de sacs* within a *cul de sac*?—Yes.

8145. Is the entrance out of Leonard's Court into High Street covered over?—No.

8146. (*Mr. Bateman.*) But narrow?—It is narrow.

8147. (*Chairman.*) What is the width of the entrance out?—I think about ten or twelve feet.

8148. There is some drainage there at the east end, is there not?—Yes.

8149. Does that run down the court into High Street, or how?—No; I think it is in connexion with an old coal working.

8150. There is no sewerage there; that is to say, there is no system for the removal of fœcal matter?—None whatever.

8151. Is there adequate surface drainage even?—There is very little drainage.

8152. It is not paved I think?—No.

8153. And scarcely scavenged?—Not at all.

8154. You remember going with us to visit that place?—I do.

8155. Was it upon that occasion in a worse state than ordinarily?—You did not see it as it usually is; it happened to be covered with snow.

8156. In fact, it looked rather better to us than it ordinarily would?—Much so.

8157. In August 1853 it was at least as bad as when we saw it?—Yes.

8158. (*Mr. Bateman.*) Is the whole surface covered with excrement?—Yes; many of the back yards are completely sodden with it; in fact it has flowed over the whole surface occasionally.

8159. (*Chairman.*) Have these houses of Leonard's Court a thoroughfare at the back of them?—None whatever.

8160. But the back yards are immediately contiguous to the back yards of Bolivar Place on the one side, and of Nun's Lane on the other?—I cannot speak distinctly about that.

8161. What is the accommodation there in respect of privies and ashpits?—There are the remains or wrecks of one or two privies, almost covered with excrement.

8162. I understand you to say that there are one or two dilapidated places in a filthy condition?—And there are ashpits which are generally pretty full of ashes and vegetable matter.

8163. The whole exterior of the place is in a deplorable condition?—Very bad.

8164. The soil from want of draining, paving, and the back yards, as you call them, from filth, all dirty, and worse than dirty, stinking?—Yes.

8165. As regards the houses themselves, are they pretty solid?—I think they are.

8166. There can be but little ventilation in them, however, according to this plan, and according to my recollection of them?—Very poor indeed.

8167. Though they have back yards they are very small, and the ventilation is very bad?—Yes.

8168. Have they cellars there?—No.

8169. And they are not much below the level of the soil?—No.

8170. (*Mr. Bateman.*) I think those houses are, as seems to be the custom in this country, a few inches below the level of the soil?—Yes, they are below.

8171. (*Chairman.*) Have you ever noticed the walls of the houses damp?—No.

8172. How are the rooms inside?—The walls are dry, but very filthy, and they are principally inhabited by poor Irish. They are crowded also.

8173. You see "kits" there?—Regularly.

8174. And boxes for the ashes in the rooms also?—Yes.

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8175. Are they mostly inhabited in single rooms by whole families?—I think there is more than one family generally in each room, and occasionally also a donkey living with them.

8176. Did you ever find any fixture windows there?—The windows all open.

8177. The people are very dirty?—Very.

8178. Their own personal habits make the state of things worse than it need otherwise be?—Yes. In one of the courts out of Leonard's Court, where the privy is in a most filthy state, and where there is very frequently a collection of putrid matter, there is a bakehouse in the immediate vicinity of the privy; and the smell at the bakehouse door is very offensive.

8179. (*Mr. Bateman.*) That is the one which you showed us?—Yes.

8180. (*Chairman.*) What is your opinion as to the virulence of the disease there viewed in connection with the circumstances to which you advert?—I decidedly think that the bad sanitary condition of Leonard's Court made the disease very much worse.

8181. You think that the filth, internal and external, and the filthy personal habits of the population contributed very considerably to the virulence of the late epidemic?—Yes, and to disease generally.

8182. (*Chairman to Mr. Clephan.*) Have you any notion what the population of Leonard's Court is?—I cannot tell you from memory.

8183. Is it 300?—I should think about that.

8184. (*To Mr. Wilson.*) Then in fact the mortality of Leonard's Court will have been the most frightful in Gateshead?—I think it will have been as bad there as in any place.

8185. On the other side of High Street again we have eight deaths in three little entries, of which the middle one is called Paxton's Yard; what is the condition of those places?—They are very confined.

8186. All the houses there seem to be back to back?—Yes.

8187. With very narrow lanes between their fronts?—Yes.

8188. And I suppose from the plan they have only the smallest possible outlets through into High Street?—Just so.

8189. But on the western side they seem to open on to considerable vacant spaces?—Yes.

8190. Are there any cellar kitchens there?—No.

8191. The ventilation of course must be indifferent?—Very bad.

8192. What sewerage is there?—There is a main sewer in front in High Street, but I cannot say that any of the houses are drained into it.

8193. Is there surface drainage?—I think that there is a sink in each of those yards to drain off the water.

8194. Are those sinks in pretty decent order generally?—Middling; tolerably good.

8195. The drainage is only in a middling condition?—Quite so; one of the drains was opened a week ago, and was found to be in a most filthy state.

8196. How are these houses provided in respect of privies and domestic conveniences?—I think very badly.

8197. Are the yards paved?—

8198. Scavenged and cleansed?—The scavengers do not go into those courts; not into private courts.

8199. Therefore anything which one careless dirty fellow may throw upon the soil remains there for ever?—Yes.

8200. What is the nature of the population?—They are principally poor; many are Irish.

8201. Not of the cleanliest habits?—No.

8202. I think you told us that there was a tap in every back-yard of Leonard's Court?—There is.

8203. Is there water also in those three courts which I will call by the name of Paxton's Yard?—Yes.

(*Mr. Garbutt.*) There is also a well of excellent water in Paxton's Yard; it used to supply the whole of that portion of Gateshead with water many years ago.

8204. (*To Mr. Wilson.*) Is there much leakage from the taps about there?—There is generally a flow of water from the tap; but in the generality of cases beneath the tap is a sink to carry it off.

8205. Still in these narrow confined yards, where wind and sun cannot get, of course even casual leakage from the taps becomes a considerable evil?—There is a general dampness.

8206. Then the next very ill-looking place which I see is called Lister's Buildings, on the east of High Street again. That seems to consist of two very narrow courts which to the eastward run together into a wider and more open space, but which seems to be pretty well enclosed all round by buildings; is that so?—Yes, it is very much confined.

8207. The entries opening into High Street are only by covered ways?—Two covered ways.

8208. To the eastward there is also a narrow thoroughfare into East Street, is there not?—Yes.

8209. And to the south it opens off into what you may call a third narrow court?—Yes; that is a separate lane.

8210. Then there is a court opening into the separate lane?—There is no thoroughfare there. That is not an open space (*pointing to the map*).

8211. Then it is still more confined than I thought it was. With regard to the two western arms, as it were, of that court the houses on one side of each are built back to back with those of the other?—Yes.

8212. And also on the other sides if they are not exactly built back to back, there is a chink between them, and the houses opposite to them in some of the very narrowest courts?—It is narrow.

8213. Therefore the ventilation of that whole place, excepting a little part at the east end, would be exceedingly bad?—Yes; those houses at the east end, however, are upon the whole a better class of houses than the others.

8214. There were fourteen deaths in Lister's Buildings, excluding one which is put down on the East Street side; can you remember of those fourteen what proportion there were in the more confined western arms of the court?—I think the principal of them took place in the south arm.

8215. In the south arm to the west?—Yes; which is very much confined and principally occupied by poor Irish.

8216. The mortality in the better part, the better houses to the east, where also they have a little better ventilation, was decidedly less than in these western arms, was it?—I think so.

8217. So that the sanitary doctrine which was illustrated on a large scale in the Mulgrave Street, Melbourne Street, and Ellison Street triangle, is illustrated on a smaller scale even in that little court?—Just so.

8218. How is the sewerage there?—I believe there is no sewerage at all there.

8219. And the drainage much the same as before?—Yes, surface drainage only.

8220. A sink in each yard?—Yes.

8221. More or less obstructed?—The drainage is not very good.

8222. But not strikingly bad?—No.

8223. There are the same circumstances of dampness of soil and atmosphere prevailing from the leakage from the water taps?—Just so.

8224. The houses are much overcrowded?—Yes.

8225. Would the same be true of the western arms at all events of that court, as of Leonard's Court, that frequently more than one family is found in a room?—Yes.

8226. Are the houses internally dirty?—Yes, in many cases.

8227. And the habits of the population uncleanly?—Yes.

8228. Therefore you have present in Lister's Buildings almost all the unfavourable circumstances for which you could look?—Yes.

8229. And you are not surprised at the high mortality occurring there?—By no means.

8230. There was a considerable dotting of cholera deaths all about the town?—Yes.

8231. In the course of your experience did you meet with any very startling cases of this kind, namely, of two or three cholera deaths in a house, or in a block of houses not presenting obvious sanitary defects?—Not one case.

8232. You found no single remarkable case of what seemed to be a departure from the ordinary laws of the prevalence of epidemics?—No.

8233. (*Mr. Bateman.*) Do you feel from what you have seen of the cholera in this last outbreak, that you could indicate pretty surely the places where it would be most virulent the next time it makes its appearance here, that is, if things remain as they are?—I think so.

8234. (*Chairman.*) If the cholera comes back in 1854 you know where it will be most virulent?—I scarcely think there will be sufficient people in those places to receive cholera. I do not know that sufficient time will pass by to allow the people to be sufficiently affected by the circumstances round them, to be liable to take cholera again.

8235. I see here, going out of High Street to the westward above Bottlebank, a small court with four deaths, so small indeed that there is not room to put the dots down properly. Do you remember the name of that court; it is just above the Island?—I think it is the Sun Yard.

8236. You find there the same unfavourable conditions, excessive confinement, and want of ventilation?—Yes; those two exist very much.

8237. What is the class of houses?—The houses are old houses.

8238. Not very solid, nor very wholesome in their walls?—I think they are pretty solid.

8239. Is there any sewerage there?—I am not aware that they have much drainage.

8240. A little surface drainage surely?—I cannot say.

8241. Does your knowledge of the district lead you to feel any surprise at the fact of four deaths having occurred in that small space?—Not at all.

8242. It is curious that on the other side of the way, on the east side of High Street, there are a great many very ill-looking courts in which, apparently, there were no deaths?—I do not think they are so much confined, and they are not so thickly inhabited either.

8243. Are the houses in Sun Yard much overcrowded?—The rooms are, very much.

8244. Then coming down to what we may call the slope of the town, at the eastern extremity, we see in Dunn's Buildings, and Price's Buildings, in the space intervening

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between Hillgate and the east end of Church Walk, thirteen deaths put down, besides two others, as to which I do not know whether they belong exactly to the block of buildings known by those names?—Yes.

8245. Some of those houses, I presume, from the look of them, are built into a bank?—They are.

8246. (*Mr. Bateman.*) The bank is very steep there?—Very steep.

8247. (*Chairman.*) A great many more of them are built back to back with one another?—Yes.

8248. It really seems to be almost all solid masonry about there?—There is an open square between Price's Buildings and Dunn's Buildings, a little space; but the houses are very high, and it is in a most filthy state.

8249. (*Mr. Bateman.*) That place is covered with filth which drains down to the houses below?—Yes; and there are one or two sinks which are always covered with excrementitious matter. I know that it is always the case.

8250. (*Chairman.*) Is there any sewerage or fœcal drainage there?—No.

8251. A small amount of surface drainage, however?—Yes.

8252. Is there overcrowding?—I do not think the overcrowding is very bad there.

8253. Does each family occupy a single room only, or two rooms?—In the majority of cases a single room.

8254. But not many cases of more than one family living in a single room?—I think not.

8255. What is the condition of the houses themselves there?—They are old houses, very badly ventilated, and of course very much confined.

8256. Are the walls solid?—Very solid walls.

8257. Damp?—The lower parts are very damp.

8258. Are there any cellars there?—You can scarcely call them cellars; they are half and half.

8259. Built into the bank?—Yes.

8260. So that on the one side the earth would be piled up against them, and on the other side they would be open?—Yes.

8261. Then here again is a group of buildings which seem to have every unfavourable feature almost that one can think of?—Yes.

8262. What is the class of inhabitants?—They are generally very poor.

8263. Are they decently cleanly or are they negligent in their habits?—Very negligent.

8264. Bad in personal habits, drunken, and irregular?—Many of them are.

8265. And in fact the place presents every unfavourable feature as well as a very high mortality?—Yes; in one of the houses in Dunn's Buildings, during the prevalence of cholera, a drain burst immediately behind it and the room was flooded.

8266. The drainage was in that state that during the prevalence of the cholera it burst up the floor of a house?—Yes, behind the fireplace, and put the fire out.

8267. Was that pure water?—No; it was very dirty water.

8268. More like the contents of a sewer?—Yes.

8269. (*Mr. Bateman.*) Two deaths are marked down just a little to the east of Price's Buildings. Is it the case that these houses are very much below the level of the street, and that every time it rains the water gets in there?—Yes; I believe there was very great difficulty in getting a coffin out. They had to get it out of the window, the place was so very much flooded.

8270. (*Chairman.*) Then passing westward, I see there were thirteen deaths in Church Walk, a street or lane, having houses only on one, namely the north side of it, and being open on the other side to the churchyard?—Yes.

8271. (*Mr. Bateman.*) But the churchyard is above the level of the street considerably?—Yes. Those deaths did not all take place in that lane; a few of them took place in the buildings on the slope below.

8272. (*Chairman.*) Excluding Bertram's Buildings, where I see there were eight deaths, those thirteen deaths are attributable to all the houses from Church Walk down to the open space or series of courts separating Church Walk and Hillgate?—Yes.

8273. What was the privy accommodation there?—In Dunn's Buildings and Price's Buildings they have none whatever.

8274. Every room there contains its kit?—Yes.

8275. And ashpit accommodation?—None, excepting that some of the narrow alleys are heaped up with ashes occasionally.

8276. (*To Mr. Clephan.*) Have you any notion of the population of Dunn's and Price's Buildings?—No.

8277. Would it be 300?—I would not venture to say.

(*Mr. Rankin.*) There are 120 people, I think, in Price's Buildings.

8278. (*Chairman to Mr. Wilson.*) Then this is on the whole, perhaps, the worst spot that we have heard of, having had seven deaths out of 120 people?—I think it is.

8279. Returning to the district on the slope of the hill, which I will include under the name of Church Walk, what is the calibre of the houses there?—The houses are generally pretty large.

8280. Solid?—Solid; but built into the bank, many of them.

8281. More or less damp?—Yes.

8282. Damp in the floors above the bottom floor?—Yes.

8283. Even the walls on the centre floor damp?—Yes, they are generally damp.

8284. In the upper floors even?—I cannot say that.

8285. But certainly, in more than one floor, the walls are more or less damp?—Yes.

8286. There is no fœcal drainage?—No.

8287. The ordinary amount of surface drainage?—Yes.

8288. (*Mr. Bateman.*) Do they receive the drainage of the churchyard to any extent?—No.

(*Mr. Garbutt.*) There is a small drain from the churchyard down to the river.

8289. (*Mr. Bateman.*) Does the water from the churchyard penetrate the ground and affect these buildings below?

(*Mr. Garbutt.*) I believe not; it is conveyed away by the small drain.

8290. (*Chairman to Mr. Wilson.*) Is the paving and scavenging of Church Walk pretty decent?—Yes, it is pretty good.

8291. But on the other side the courts which separate Church Walk from Hillgate are very bad?—Yes.

8292. And there is no scavenging in those courts?—No.

8293. So that if half-a-dozen dirty people choose to pollute the surface it remains polluted for an indefinite period?—Yes.

8294. Is it overcrowded there?—Not very.

8295. A single family to a room?—Generally; not more, except at the west end of Church Walk, which is very crowded.

8296. There is no ventilation at all there?—No.

8297. There are not many cases of one family occupying two rooms?—No.

8298. Always one family to a room, is it?—Yes.

8299. Is the interior of these places dark?—Some of them are very dark.

8300. There is a difficulty in finding your way up stairs?—Yes.

8301. When you get into the rooms are they ill ventilated?—Yes.

8302. Are they pretty clean?—They are pretty clean.

8303. What is the class of the inhabitants?—They are not the lowest.

8304. Not of the worst habits?—No.

8305. (*Mr. Bateman.*) Are there any cases of necessaries and stables under cover?—I think not.

8306. (*Chairman.*) What is the condition generally of these courts between Church Walk and Hillgate?—They are pretty good.

8307. Are there any privies and ash-pits there?—I think not.

8308. Then every room has its kit?—Yes.

8309. And if a man should be dirty enough to empty his kit into the court, the contents remain there for ever?—Yes.

8310. There are not many houses there back to back?—No.

8311. They are jumbled up a good deal, but there are not many houses back to back; and most of them would have through ventilation to a limited extent?—Not a great deal of it.

8312. Then when you get to the extreme corner between Church Street and Hillgate you see that there were three deaths apparently in a single house?—I think those were in one house.

8313. Do you remember the condition of that house?—It is very close.

8314. It has no back ventilation apparently?—No.

8315. Very confined, and I suppose with the ordinary concomitants of no sewerage, very little surface drainage, and so on?—Yes.

8316. Was there anything peculiar about the habits of the people there?—They are a low class.

8317. Were they dirtier than their neighbours?—I think they were; the house is inhabited by very poor and very dirty people.

8318. Is it a tenemented house?—Yes.

8319. I suppose along Church Street the houses generally are inhabited by more decent people, who have either whole houses to themselves, or else two or three rooms a-piece?—Yes.

8320. But this happened to be a house in which the whole was let out in single-room tenements?—Yes.

8321. Were any particular parts of it specially overcrowded?—No.

8322. Were these three cases all in one room?—Two were in one room.

8323. In what floor?—I believe the middle floor.

8324. I see two little gaps or chinks at the back of this house; what was the condition of those places?—I think those must be very minute; I do not recollect ever seeing them.

8325. Do you think there are privies or ash-pits or anything of the sort there?—I cannot say.

8326. Is the slope there pretty steep?—Yes.

8327. Would there be cellars there?—There are cellars.

8328. One side of the cellar would be adjoining the damp bank?—Yes.

8329. Then the walls of the whole of the house may be more or less damp?—Just so.

8330. Is the house pretty solid, or is it old?—It is a solid house.

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8331. Do you think that the distinction in the overcrowding and in the less cleanly personal habits of the people inhabiting that particular house would account for its being struck in that particular way?—I think so.

8332. Then we come to Bertram's Buildings, in which there are no less than eight deaths put down as close as the dots can be crowded together?—Yes.

8333. That is a part of Hillgate as we may say?—Yes.

8334. Is it at the bottom of the slope?—Yes.

8335. Are Bertram's Buildings on a pretty level surface or is it on the slope?—They are built against the bank.

8336. (*Mr. Bateman.*) Very steep; the back is about three stories higher than the front, is it not?—I am sure I cannot say. I think two stories.

8337. (*Chairman.*) Are there any peculiar circumstances about Bertram's Buildings to distinguish them from the other apparently almost equally confined courts along the south side of Hillgate?—Those buildings are inhabited by a very low class of Irish.

8338. Is there much overcrowding?—Not to a very great extent.

8339. Personal uncleanliness?—Yes. Bertram's Buildings also are close to a large warehouse in which there is very much guano, and at the east end also there is a skinnery.

8340. Is that skinnery the one of which we have heard as the great nuisance of Hillgate?—Yes.

8341. That neighbourhood is in a shocking state?—Yes; the buildings themselves, however, are very good.

8342. The paving is such that no scavenging could ever keep it clean?—Quite so.

8343. And if I recollect rightly there is a sort of sewer running down there, the stench of which is almost enough to knock you down on coming near it?—Yes.

8344. To a casual observer even there are unfavourable circumstances in the immediate vicinity of that place sufficient to account for almost any amount of mortality?—Yes.

8345. The whole of that steep slope moreover, including Price's Buildings and Dunn's Buildings at the east and Bertram's Buildings at the west end of it, is also exceedingly unfavourably situated in respect of its being just below the churchyard, with the drainage of the churchyard probably draining down into the foundations of the houses?—Yes.

8346. And there were thirty-six deaths in that block or slope, excluding the four which occurred to the west of Bertram's Buildings, not so directly under the churchyard?—Yes.

8347. Proceeding a little nearer to the Tyne Bridge, I see three deaths in Chapman's Yard?—Yes.

8348. Was that where we went down to a public privy?—Yes.

8349. That was not so bad, I think, as some other places which we visited?—No, it was more open; but it is immediately in connexion with the privy, and has in front a largish area, in which there is generally a very large amount of excrementitious matter.

8350. Even at that time there was excrementitious matter on the snow which had fallen there within the last forty-eight hours or less?—Yes.

8351. Then again going west of the Tyne Bridge, in Blue Bell Entry and some other entries there are marked seven deaths, five on the south and two on the north side of Pipewellgate. Are the houses very confined there?—Very much so.

8352. All of them back to back?—Yes, and built into the bank too.

8353. None of the houses in which those seven deaths occurred have through ventilation?—No.

8354. The chinks between the fronts of the houses are extremely narrow, so that ventilation is almost an impossibility?—Yes. I may mention that the two houses in Blue Bell Entry are registered lodging-houses.

8355. Deaths took place there?—In one. I think that was the last case but one in Gateshead. They had been quite exempt for a very great time.

8356. Did you notice a sensibly less mortality in the registered lodging-houses which were under the surveillance of the Local Board of Health than in the other houses of about the same calibre and in similar situations?—I did.

8357. You could see the effect of the surveillance of the Board of Health in the diminution of the mortality in the houses under their surveillance?—Yes.

8358. You could see that distinctly?—Yes; the registered lodging-houses at that time were not very crowded. I think they had probably only about half the number of inmates which they were allowed to take. At the outbreak also of cholera the whole of those houses were whitewashed from top to bottom, and great care was taken.

8359. (*Mr. Clephan.*) Were not many out at the harvest?—Yes.

(*Mr. Garbutt.*) Not altogether.

(*Mr. Superintendent of Police.*) Those lodging-houses are more crowded then than at any other time of the year.

8360. (*Chairman.*) Do not the people go out to harvest in August and September, and come back in October?—Yes; but there is such an influx of strangers during the harvest, that the common lodging-houses are more crowded in this town at the harvest than at any other time, except at the Newcastle races.

8361. (*Mr. Bateman.*) People passing through to harvest?—Yes.

8362. (*Chairman.*) Perhaps there is sufficient harvest work for them in the immediate neighbourhood to cause an influx into the town?—Yes; and moving from one part to another as the harvest goes on, at the week's end they can scarcely be accommodated.

8363. (*To Mr. Wilson.*) However, whatever numbers there may have been there, you could discriminate between different houses in respect of the amount of mortality occurring in them, according as they had or had not been put under the surveillance of the police and of the Local Board of Health?—Yes.

8364. I see here Thompson's Stairs, Pitman's Entry, Scott's Buildings, Veatch's Buildings, Bage's Yard. There were some twenty-seven deaths there, on the south side of Pipewellgate, in what is here represented as occupying about one inch and a half square. Is there anything peculiar in the position of those places to distinguish them from the others, the history of which we have gone through?—Thompson's Yard is very much confined and crowded.

8365. That must have been very much improved, however, by the railway operations, and must be very much better than before the railway made that tremendous breach there?—Decidedly so.

8366. The railway viaduct there is very high?—Yes.

8367. So that there would be no great ventilation from east to west, but there would be ventilation from north to south?—But the height will not affect the houses very much in Thompson's Yard.

8368. With regard to Veatch's Buildings, there were nine deaths in that block alone. It seems to be a very narrow court, entirely surrounded on all sides by buildings?—Yes.

8369. There may be covered passages into it from one side or another, but it is completely surrounded by houses?—Yes.

8370. So that in fact it constitutes an oblong well, in which may lie and stagnate any effluvium which happens to arise there?—Yes. Nearly at the top on one side there is a sink which is always covered with excrementitious matter and in a most filthy state. There is also a tripery there which causes it to be very bad, near the south end.

8371. Where the houses are more built into the bank?—Yes.

8372. Was the mortality greater in the neighbourhood of those two particular nuisances?—I think it was.

8373. Of the nine deaths a great proportion was in the southern or upper end of the yard near these two nuisances?—Yes.

8374. I suppose there is no fœcal drainage there?—No.

8375. The ordinary amount of surface drainage that we saw?—Yes.

8376. The sink loaded with the contents of kits and all that sort of thing?—Yes.

8377. How is the paving?—It is only partial. The houses are principally new; but they have a window and door at the one end only of each room.

8378. How is the scavenging?—It is not interfered with at all in that respect.

8379. Then the exterior condition of the houses there is as about as bad as you can have it?—Yes.

8380. What is the state inside?—They are kept in middling order.

8381. What is the nature of the tenantry?—They are principally Irish.

8382. Of a worse or better kind?—Not of the worst kind.

8383. How is the overcrowding?—It is not much crowded.

8384. Then there the evils were pretty much external to the houses?—Yes.

8385. The form of house construction, back to back with others, in part built into the bank, the want of ventilation, the want of paving, and scavenging, and other circumstances over which the habits of the individual tenants could have but little control, were there the main sanitary grievances?—Yes.

8386. I see five deaths marked down at the bottom of Wardman's Stairs. Is there an open sewer there running down?—Yes.

8387. (*Mr. Bateman.*) Is that at the spot where that open sewer crosses Pipewellgate?—Yes; it is an open drain from two glue manufactories, and there is frequently a very bad smell there.

8388. Have you ever seen it stopped up, and the drainage of the sewer filling the street?—Yes; that is a little to the east.

8389. (*Chairman.*) The houses there are built back to back?—Yes.

8390. And Wardman's Stairs itself is but a narrow place?—Yes.

8391. There is an opening northward to the river, so that they have fair ventilation in that direction?—Yes.

8392. But in other respects they are just as crowded and ill convenienced as they can be?—Very much so.

8393. There is no fœcal drainage?—None whatever.

8394. The surface drainage is very offensive owing to the great quantity of glue and other matters in it?—Yes.

8395. Is there much overcrowding in the houses?—No, not a great deal.

8396. Taking then the whole of Gateshead, you admit that at all events a large proportion of the mortality of Gateshead may be directly traced to the vicinity of sanitary defects of two classes: firstly, external circumstances over which the individual person has no control, such as form of house construction, want of sewerage and drainage, damp walls and cellars, and so on; and secondly, personal habits of uncleanliness, recklessness as

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to emptying the kit when they might do so, and so on. In what proportion do you think that those two classes of evils have affected the mortality?—I should think that both may have contributed a great deal.

8397. You think that the filthy personal habits have had a very considerable influence as well as the unfavourable external circumstances?—I think so.

8398. Speaking generally we may say that the form of house construction in the poorer districts is decidedly very bad?—Yes.

8399. That to a large extent in the poorer districts the houses are built back to back or into damp banks or both?—Yes.

8400. With bad cellars?—Yes.

8401. And generally ill ventilated?—Yes.

8402. That the sewerage as respects fœcal matters is entirely wanting in all the poorer districts?—Just so.

8403. That the drainage for surface waters exists to an inadequate degree, and, where it exists, exists imperfectly, so that dampness and all the evils of dampness are present to a considerable extent in the poorer districts?—Yes.

8404. Do you know much of the more recently built houses, houses which have been built since you have been here?—There are some in Nelson Street.

8405. Have you seen the effect of the surveillance of the Local Board of Health on the manner in which those houses are constructed, as compared with that in which William Street, Pollock Street, Russell Street, and other less recently constructed houses have been erected?—I think that the arrangements in the most recent ones are very bad. The cellars in Nelson Street indeed are much worse than any others in the town; they are so very dark behind, especially the back room; at any time you are obliged to have a candle to see there.

8406. Nelson Street has been built within your recollection in the last year and a half?—A part of it.

(*Mr. Garbutt.*) It is not finished yet; it has been commenced about three years ago.

8407. (*To Mr. Wilson.*) Have both sides been built within your recollection or only one side?—Only part.

8408. I understand you to say that, notwithstanding there has existed here a Local Board of Health having control of such matters since 1851, you think Nelson Street, especially in respect of its cellars and kitchens, has been erected in quite as faulty if not more faulty a way than Pollock Street and William Street?—I think so.

(*Mr. Garbutt.*) But the faulty erections have not taken place since the establishment of the Board of Health.

8409. (*To Mr. Garbutt.*) The Local Board of Health was established in February 1851?—But it did not come into operation until last year in Gateshead. The bulk of these houses were already erected when it came into operation in Gateshead.

8410. The Gateshead Provisional Order constituting the Town Council the Local Board of Health here was certainly dated in February 1851?—Yes; but they had not full powers until a later period.

8411. How have they got any additional powers since then?—I think their powers were not confirmed by an Order in Council until a later period.

8412. Yes, the same year, in 1851, there was a Public Health Supplemental Act, confirming the Provisional Order. I do not know how you have got power since?—The building of these houses took place before the operation of the Board of Health. They were there probably when that Act came in force.

8413. What you mean to say is, that the cellar parts, which Mr. Wilson most complains of, were built before that Act was put in operation?—Yes, before the Act.

8414. (*To Mr. Wilson.*) Do you remember any other streets which have been built since you have been here?—Yes; Trinity Street, which is south of Leonard's Court.

8415. What is the condition of the houses there?—The houses there are very good; but they are not well ventilated.

8416. They are an improvement upon the previous system?—Decidedly so; but the streets are very badly drained and very badly paved.

8417. How long have they been completed; or are they completed?—They are completed. I do not know how long they have been so.

8418. (*Mr. Clephan.*) Is there any means of drainage?—No; none whatever.

8419. (*Chairman.*) And the nature of the house construction there is bad, in respect of ventilation?—Yes, decidedly bad.

8420. Isee in Nelson Street there were six deaths?—Yes.

8421. Which, considering the number of houses there, I suppose is a pretty good sprinkling?—Yes.

8422. How are the houses there?—The houses are pretty good, and occupied by respectable mechanics; but the cellars in many instances are very bad. I know that two of those six deaths occurred in cellars.

8423. Then reverting to the town at large, it is a fact that generally the habitations of the poorer classes are sadly destitute of proper domestic arrangements—of privies, for instance?—Yes.

8424. And of middens too?—Yes.

8425. And that since the Local Board of Health came into operation it has not improved their condition in that respect?—I have not known of that.

8426. For a year and half, within your own knowledge, whole districts of Gateshead have remained and still continue sadly deficient in those respects?—Yes.

8427. And you have not known of any landlords or owners of house property having been compelled to put in any such?—No.

8428. It is stated in the report of Mr. Rawlinson that there are literally no public privies in the borough; how many may there be in the whole town?—I do not know of any. I know one or two which are used as such; but I do not know that they are really public; there is one in Pipewellgate and one in Hillgate.

8429. That is to say they are privies which happen to be used by the public, but which have not been built by any public body for the accommodation of the public?—No.

(*Mr. Clephan.*) In one street a man got up in the night ill of cholera, and having no place to go to he was going over to one of the privies in Newcastle, but the persons in the house sent him up stairs to the kit, and he died on the stairs.

8430. (*To Mr. Wilson.*) With regard to those privies, of whose existence you are aware, have you found them at periods anterior to the outbreak of cholera in a very unsatisfactory condition?—Yes.

8431. It is stated in Mr. Rawlinson's report that they are abominably dirty, so that it is not surprising that people should not make use of them. Is that correct?—Quite correct. Some of the privies, I believe, are in a filthy state, even where people go to them.

8432. Leaving for a time the poorer districts, what is the condition in that one respect of the better classes; how are they supplied with respect to those domestic conveniences?—The whole of their houses, I believe, have privies or water-closets atached to them.

8433. What is the ordinary arrangement, privies or water-closets?—I think privies. I cannot speak definitely about that.

8434 We shall get from Mr. Main ultimately the number of water-closets that he supplies here, and I suppose there will not be very many more supplied by rain water cisterns or other cisterns?—I should think not.

(*Mr. Garbutt.*) In the more wealthy portions of Gateshead they could not have water-closets; there is no drainage.

(*Mr. Wilson.*) Is there not some drainage into the coal workings?

(*Mr. Garbutt.*) There are some which have water-closets draining into the old coal workings.

8435. (*Chairman to Mr. Wilson.*) Do you think that generally it is true on this side of the water, as it is on the other, that there is what you may call a sad neglect in respect to these matters, that people who ought to know better allow privies to get improperly full, and to get into an improper state?—Yes.

(*Mr. Garbutt.*) I believe that arises from the difficulty of getting them emptied. In the house where I lived five years ago, people would empty it without cost; and latterly they have charged five shillings each time of its emptying.

8436. (*To Mr. Garbutt.*) I suppose then some one did it who had a farm immediately contiguous?—Yes.

8437. And the further of course the town extends, the further the houses are from the farms, and the more the expense of cartage the greater the difficulty?—Yes.

8438. (*To Mr. Wilson.*) Returning to the poorer districts, we had at Newcastle some very startling information given to us as to the per centage of the poor population which might be said to be all but destitute of proper privy accommodation. Have you ever entered into any computation, or can you form an opinion upon that point, viz., as to what proportion of the poorer classes are virtually destitute of privy accommodation?—I should think half at least.

8439. Do you think that the circumstance to which Mr. Clephan alludes, namely, that in the time of the cholera a sick man got up in Gateshead and intended to go over to Newcastle to relieve himself, has happened often?—I do not think it could happen very frequently.

8440. They would ordinarily have resort to a kit?—Yes.

(*Mr. Clephan.*) He was a lodger.

(*Mr. Garbutt.*) He must have been a stranger, I think.

(*Mr. Rankin.*) He would not have done it if he had not been a stranger; he might perhaps not know where to go to.

8441. (*To Mr. Wilson.*) However, one might say, without overstating the case, that one half of the poorer population of Gateshead was all but destitute of privy accommodation?—I think I could say that safely.

8442. You could hardly contemplate such a state of things without coming to the conclusion that it must lead to a frightful vitiation of the atmosphere with excremental exhalations?—Just so.

8443. It is not possible under those circumstances, that the rooms or the courts in which these people live should be sweet and wholesome?—Just so, and I may also state that very few even of the registered lodging houses have privies or water-closets; the whole of the female part of the lodgers have to use a kit.

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8444. I am speaking mainly of what I call Gateshead Proper. Of course, in the outskirts of the town, where population is thinly scattered, one could hardly expect a Local Board of Health to interfere very rapidly and very energetically; but speaking of such places as Pipewell Gate, Hillgate, and places densely inhabited on either side of the High Street, it is the fact that to this hour, after two or three years' continuance of the Board of Health, even the registered lodging-houses remain sadly destitute of privy and ashpit accommodation?—Yes.

8445. And in fact, considerable districts continue in a state which must inevitably lead to a vitiation of the atmosphere which would account for almost any virulence of an epidemic, that might once more break out?—Yes.

8446. Inside the rooms as well as outside the houses?—Just so.

8447. The habitual use of kits inside a room is hardly compatible with any very pure state of the atmosphere, even supposing it should be emptied the very minute afterwards on to the grating?—Yes, the smell in many of those houses is really very disgusting.

8448. When you go into the house you feel, on this side of the water as on the other, that the sooner you get out the better for yourself?—Yes.

8449. In Newcastle we had specific statistics given us with regard to Sandgate. It was said, "Here is a population of 4,000 or 5,000 people, of which nine-tenths have no "privies." Supposing we took Pipewell Gate, could you give us any notion how many privies there are there?—I think three or four privies. There are more in the self-contained houses; but in the tenemented property I think there are not more than that.

8450. Excluding the few self-contained houses, you would only know half a dozen privies which in one way or another were available for the remainder of the population in the tenemented houses?—I know one or two.

8451. Half a dozen would be the outside statement?—I do not think there are nearly so many; there are only two or three used by the public.

(*Mr. Scott.*) I have two, myself.

(*Mr. Wilson.*) Fastened up, however.

(*Mr. Scott.*) No; they were fastened up in the time of cholera. From so many people coming to them, and owing to the difficulty of keeping them clean, I nailed them up.

8452. (*Chairman.*) To how many privies in Pipewell Gate do you think a poor man could by any means have resort?

(*Mr. Garbutt.*) Twenty, I should say; that is, not immediately contiguous to the neighbourhood where he lives, but from one end of Pipewell Gate to the other he might find twenty perhaps, although they nominally belong to certain parties, yet any person who chooses to go may use them, particularly along by the water side.

(*Mr. Scott.*) For instance, there is my own, which any person goes to frequently,

8453. (*Chairman to Mr. Wilson.*) I suppose that a privy in a tenemented house open to all the tenants is open virtually to the public?—No; the public are entirely excluded.

8454. Is it locked?—Yes, it is locked or fastened up and they cannot get to it.

8455. And the people who have a right to use it have a key?—Yes; the only really public privy I ever heard of in Pipewell Gate, and I think I have made about 100 inquiries, is one at the waterside.

8456. Supposing I were a labouring man in Pipewell Gate, to how many different privies do you think I could, after a short acquaintance with the neighbourhood, have access without exposing myself to be kicked out or interfered with?—I know of but one.

8457. If you were to say that I as one of 2,000 or 3,000 people living in Pipewell Gate had access by sufferance to one or other of three or four privies, you would be making an outside statement of the matter?—I think so; the females have none.

8458. For the female population of Pipewell Gate you may say that there exist no privies at all?—No.

8459. (*Mr. Bateman.*) Taking them as families and not as men only, there are no privies?—No; the women and children generally use kits.

8460. (*Chairman to Mr. Clephan.*) I suppose I am not very far off in taking the population of Pipewell Gate to between 2,000 and 3,000?—I should think about 2,000.

8461. 2,000 would be a fair computation?—I think so.

8462. (*To Mr. Wilson.*) Of course along Pipewell Gate itself there may be here and there better houses having privies of their own?—Decidedly so.

8463. Excluding them, say excluding one-tenth of the population, the remaining nine-tenths of the 2,000 inhabitants of Pipewell Gate would be dependent upon access by sufferance to one, two, three or four privies?—Yes, I think so.

8464. You have no doubt of that?—No.

8465. With regard to the paving, the main thoroughfares, that is to say High Street, and one or two others would be pretty well paved?—Yes.

8466. But with regard to other districts I think you did not speak very highly, even of Victoria Street or Grosvenor Street?—No.

8467. Taking the lower and poorer districts, Leonard's Court, Pipewell Gate, Hillgate, Church Walk, Lister's Buildings, and so on, paving may be said hardly to exist?—It is very imperfect.

8468. There is a little paving here and there, but it is very bad in many parts?—Yes.

8469. No practicable amount of scavenage would get the filth out of the ruts and holes there?—No.

8470. Generally the paving of the town is very much neglected?—Yes.

8471. Also you have intimated that the scavenage of these main thoroughfares is pretty good?—Yes.

8472. But again that the scavenage of the lower and poorer districts, which most require it, is next to none?—Just so.

8473. That people carry out kits and dust boxes into the main streets for the scavenger's cart to take away in its passage through them, but that anything which one dirty fellow chooses to throw into the area of a retired court may remain there for the next seven years?—The scavengers never come to private courts at all.

8474. In Lister's Buildings, Leonard's Court, Bertram's Buildings, Victoria Street, Dunn's Buildings, and so on, have you frequently within the last twelve months noticed accumulations of refuse?—Yes, very large.

8475. Of an offensive nature?—Principally excrementitious matter.

8476. In fact, accumulations as concentratedly offensive as you can well conceive?—Just so.

8477. Frequently or only occasionally?—Frequently; in many of those places such condition constantly exists.

8478. And to a considerable extent?—Yes.

8479. So that what we saw will not have conveyed impressions in any degree exaggerating the ordinary state of the town?—No.

8480. Again, as regards the house construction, there are, though not to the same extent perhaps here as in Newcastle, yet at all events there are some districts of the town, in which the houses are very old, dilapidated, and almost incapable of improvement except by being taken away and built up again?—Yes.

8481. And the walls of a great many of them being contiguous to banks are habitually and constantly damp?—Yes.

8482. Would you say of any considerable proportion of the dwellings of the poorer population here that they are downright filthy and unwholesome, and not fit for human habitation?—I can say so very safely.

8483. Of a considerable proportion?—Of a great number.

8484. That one-fourth or one-third of the tenements occupied by the poorer classes here are not fit for human habitation?—Almost the whole of those in the lower part of the town are unfit for such a purpose.

8485. If we take the districts of Victoria Street, of Leonard's Court, Lister's Buildings, Sun Yard, Price's and Dunn's Buildings, Church Walk, Bertram's Buildings, Veatch's Buildings, and so on, are the large majority of the tenements there occupied by the poorer classes not fit for human habitation?—Yes.

8486. You would admit that arrangements, which should get rid of the kits out of the rooms, would greatly improve the condition of them?—Yes.

8487. That arrangements by which the few privies and ashpits which there may be should be more regularly emptied and cleansed would also improve their condition?—Just so.

8488. That drainage would improve the state of the courts in other respects?—Yes.

8489. And that by whitewashing and purifying these densely populated abodes you might still further improve them?—Decidedly so.

8490. Supposing all that to have been already done, do you believe that there any parts of this town, which even after all that would not be properly fit for human habitation?—Yes.

8491. In fact there are some parts of the town irremediably unfit for human habitation?—Just so.

8492. I suppose that such parts as those would be mainly confined to Pipewell Gate, and Hillgate, and a few places like Leonard's Court and Lister's Buildings, in which the form of house construction is irremediably bad?—Especially in Lister's Buildings, Pipewell Gate, and Hillgate.

8493. In fact, there is more than one district of some extent in Gateshead, of which you might say that it was almost irremediably unfit for human habitation?—Yes.

8494. That, to put it into such a sanitary state as should authorize them to expect immunity from a constant succession of virulent epidemics, you must pull it down?—Yes.

8495. You said, with regard to the common lodging-houses, that you had seen a decidedly beneficial effect produced in them, and the mortality in them as far as you could judge, decidedly diminished by the operations of the Local Board of Health?—I think so.

8496. You do not entertain any doubt upon that subject?—None.

8497. With regard to slaughter-houses, offensive trades, smoke nuisances, and so on; you have mentioned, I think, certainly more than one place, three or four places probably in which they exist to such an extent, as to be in your judgment appreciably prejudicial to health?—Yes.

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8498. Had you occasion to notice the state of St. Mary's churchyard previously to the outbreak of cholera?—No.

8499. Excepting the main thoroughfares, in which you have seen improvements in respect of paving and scavenging, and in which they are putting down or preparing to put down sewers, have you known of any material improvement in the sanitary state of the town since you have become acquainted with it?—No.

8500. In the poorer and worst districts, it is just as bad now as it ever was, within your knowledge?—I think so.

8501. As to the question of the water, do you drink Whittle Dean water ordinarily?—Yes.

8502. Did you continue to do so during the late epidemic?—Occasionally.

8503. Did you notice a difference between the quality of the water supplied to you last summer and the winter before that, or the summer before that?—Yes, it was very different.

8504. It was bad?—Yes.

8505. To the eye?—It was very thick and muddy.

8506. Did you ever notice anything worse about it than that?—No.

8507. You never noticed any bad smell?—No.

8508. Even when you got a considerable volume of water together in a bath you did not notice it?—No.

8509. Of course the taste would not have been nice when the water was dirty and muddy, but did you ever notice anything which may be called offensive, anything which gave you an idea of its containing putrid matter?—No, nothing.

8510. Then, you have no very serious complaint to make against the water, as far as your experience goes?—No.

8511. Do you think that the poor people generally have an adequate water supply?—I think they are pretty well supplied.

8512. There are not many instances where they have, as in Sandgate, on an average to travel 100 or 200 yards to get water?—I believe that that is a very rare occurrence in Gateshead.

8513. In most of these courts, as I understand, there is a standpipe?—Generally so.

8514. And not unfrequently in the back yard of every house?—Yes, in the lower parts of the town.

8515. (*Mr. Bateman.*) In Victoria Street, also?—Yes.

8516. (*Chairman.*) How is Leonard's Court in respect of water?—There is a pump for water at the eastern extremity of the court.

8517. Does it supply the whole court?—I think it does, I will not be sure.

8518. In the courts out of Leonard's Court, have they a separate water supply?—No, I think they are supplied from the same pump, though I am not sure about it.

8519. How are they supplied in Lister's Buildings?—They have a water tap.

8520. One?—One tap for each part of the court.

8521. Probably three then, in the whole?—I should think so.

8522. Then, in a place like Sun Yard, do they have a tap all to themselves?—I do not know, but I should think they do.

8523. How would Price's Buildings, and Dunn's Buildings be supplied with respect to water?—They have two or three taps throughout the yard.

8524. There are very few houses in the town, I suppose, in which they have a supply within the houses?—Very few.

8525. A man who lives on the third storey must go up and down three pair of stairs for every drop of water he wants?—Yes.

8526. Both clean to get and dirty to empty?—Yes.

8527. In Bertram's Buildings and Veatch's Buildings is it the same kind of thing?—In Bertram's Buildings they have to come out into the street; but in Veatch's Buildings I think the standpipe is in the court.

8528. In Bertram's Buildings they must come down into Hillgate?—Yes.

8529. They would have to come down a certain number of stairs and to traverse the court into the bargain?—Yes.

8530. Of course that would deter people in wet and cold weather and so on from getting as much water as they ought to want?—Yes.

8531. Upon the whole then, as compared with Newcastle at all events, the poorer population of Gateshead seem to be pretty well supplied?—I do not know much about Newcastle, but I think in Gateshead they are pretty well supplied with water.

8532. (*Mr. Bateman.*) That is to say they may have it if they choose to go for it?—Yes, and it is open for them.

8533. (*Chairman.*) Do you know anything of the well and spring water here?—I do of the one opposite Mulgrave Terrace.

8534. Habitually or only occasionally?—Occasionally.

8535. Did you ever notice anything peculiar about the well water last year?—No; it was not very good during the cholera time.

8536. You do not know of anything like what has been stated to us with regard to some springs on the other side of the water; viz., that springs ordinarily bright and sparkling became offensive in the cholera time?—No, I did not notice that.

8537. Ordinarily I believe the Whittle Dean water is good and satisfactory?—Yes.

8538. It is a little hard?—Yes.

8539. Are the public baths and washhouses now in operation?—They are being erected.

8540. Will you favour us with your opinion as to the effect which the impurity of the water may have had upon a bowel epidemic?—I have no doubt that it would predispose the public generally to diarrhœa and make them more susceptible to the cholera poison.

8541. (*Mr. Clephan.*) Cannot you illustrate, by the instance of New Gateshead, that the water made no difference at all; all the people used Whittle Dean water?—I think they all used Whittle Dean water.

8542. Were all the people in New Gateshead affected by the epidemic?—No.

8543. (*Chairman.*) Did dysentery prevail here much in July and August?—No; in October and November it did.

8544. What do you know about New Gateshead?—It consists of two clumps of buildings.

8545. Confining your attention firstly to the clump in which the great mortality occurred, those seem to be houses each having a small back yard?—Yes.

8546. Existing as a single row except for one half of the length?—Yes.

8547. Comparatively open?—Yes.

8548. Entirely surrounded by country?—Just so.

8549. And therefore presenting certain favourable features. There is no sewerage there of course?—Yes, they are all well sewered there; they have water-closets and drains.

8550. Where do they drain into?—There is a large sewer there.

8551. (*Mr. Bateman.*) It runs down from New Gateshead to the Tyne?—Yes.

8552. (*Mr. Clephan.*) A private one?—Yes.

8553. (*Chairman to Mr. Clephan.*) As you put the case, the part where there was no mortality was supplied with Whittle Dean water?—Both parts were supplied with Whittle Dean water; but the one part was free from sickness, and the other part had great sickness and great mortality; therefore the Whittle Dean water could have had nothing to do with it.

8554. (*To Mr. Wilson.*) I see in the one block of New Gateshead three cases apparently, in each of which two individuals died in a single house?—Yes.

8555. Did you attend any of these thirteen cases?—I attended the major part of them.

8556. If the houses are sewered of course they are well drained also?—They are well drained, and I think the drains are all trapped.

8557. (*Mr. Bateman.*) Are the houses of the same character?—No; the houses that were free from disease are not tenemented; they had not a single death from cholera. The one death that is put down there was from diarrhœa. It occurred at a late period in the case of a child who was brought there.

8558. An imported case?—Yes.

8559. (*Chairman.*) The houses, I understand you to say, in which no mortality occurred were occupied as self-contained houses?—Yes.

8560. With little gardens and yards both in front and behind?—Yes; they are well drained also.

8561. They are more open in one respect than the others, and again in another respect they are less open?—Both parts are very open.

8562. Both parts are sufficiently open, you think?—Yes. Those houses which were exempted had privies.

8563. (*Mr. Bateman.*) And the others had water-closets?—Yes.

8564. And trapped drains?—Yes, both had trapped drains.

8565. (*Chairman.*) How did these trapped drains answer; did you ever smell anything offensive?—The drains are outside in the yards.

8566. At the back of the houses?—Yes. I did not find any offensive smell at all.

8567. They are external water-closets?—Yes.

8568. Supposing that the traps of those water-closets did not answer well, still the exhalations would not have got into the house directly?—No.

8569. It would get into the atmosphere and into the yard, and so come in a diluted state only into the house?—Just so.

8570. What circumstances do you know of tending to explain this difference of mortality, except that the one set of houses was occupied as tenemented houses, and the other as self-contained houses?—The self-contained houses are occupied by very respectable mechanics, and the houses themselves are very well ventilated.

8571. (*Mr. Clephan.*) They are called draughty?—They are called draughty in consequence of having so much ventilation.

8572. (*Chairman.*) In the block where the mortality occurred how are they ordinarily let; does each tenant occupy one room or two rooms?—One or two rooms.

8573. (*Mr. Bateman.*) Are they equally well ventilated?—They are not well ventilated. They are erected in such a manner as to prevent the free admission of air.

8574. (*Chairman.*) Have they not through ventilation?—No.

8575. Have they thorough ventilation in the other case?—Yes; they are well ventilated.

8576. With regard to these houses where the mortality occurred, you have said that they were badly constructed, so as to prevent adequate ventilation?—Yes.

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8577. Whereas the other block of houses which were exempt from cholera were much better ventilated?—Yes; and one block consisted of tenemented houses, a whole family occupying a single, or at most two rooms; whereas in the other each family occupied a whole house containing at least three or four rooms.

8578. I see from this plan of Mr. Clephan's and the references on it that the amount of overcrowding was nothing very startling however?—No.

8579. The number of people present in one house seems to have been 22, four families in six rooms?—Yes.

8580. There there were two deaths from cholera, and I see at the corner house, which has no back ventilation apparently, and where there were 27 persons, there was no death at all?—Yes; there was back ventilation there also; they have a gallery outside.

8581. I see there are five houses, each holding 17 persons, in only one of which was there a single death?—Yes.

8582. Then there was one house occupied by 20 persons, another by 32 persons, and another by 19 persons, in which there was no mortality at all?—There was one death from cholera, I believe, in the house containing 32 persons.

8583. (*Mr. Clephan.*) Do you know that those houses were built by a gentleman who, when he built them, thought that he was building a better class of houses, and really wished to place the working people in a better condition than ordinarily they could occupy at Gateshead?—Yes; I believe that is the case.

8584. And that he was at the expense of making a large drain down to the river, in order that they might have a good drainage and water-closets?—Yes.

8585. And the other houses had privies because there was no drain when they were built?—Yes.

8586. But they were built with very small ash-pits, that the tenants might be compelled to empty them at short intervals?—Yes.

8587. (*Mr. Bateman.*) The difference in the two cases is that there were 26 houses in the north block of New Gateshead and 417 persons, and 21 houses (two of them unoccupied) in the other block and 130 persons only?—Yes. The small rooms upstairs in the north block are not ventilated; there is a window and a door at one end, and no fireplace, and the bed is in the opposite corner, so that it is impossible for air to get into it.

8588. (*Chairman.*) Therefore I am to understand you, I not having been on the spot, that the ventilation of these houses where the mortality occurred was very bad?—Not very bad, but not so perfect nearly as in the other case.

8589. The rooms are *cul de sacs*?—The bed-room is so, but the larger or day-room has a window in front and a door behind. Downstairs again, where the tenants have only one room, in the majority of instances the window and door are also in front.

8590. Do you remember whether the greater amount of mortality occurred upstairs or downstairs?—I do not think it was greater in the one case than in the other.

8591. There was no material difference?—No.

8592. (*Mr. Bateman.*) Then the difference of circumstances appears to be this, that in the one case they are self-contained houses, occupied by one family and having privies?—Yes.

8593. Better ventilated also?—Yes, and inhabited by a higher class of mechanics too, I believe.

8594. Who used Whittle Dean water?—Yes.

8595. And the others are let off in tenements, occupied by several families, not so well ventilated, having water-closets, and using Whittle Dean water?—Yes.

8596. Therefore Whittle Dean water could not have much to do with the question, you think?—No.

8597. (*Mr. Clephan.*) In addition to the mortality there, was there great sickness in that northern block of houses?—Yes, very much more sickness in that block than in the other.

8598. (*Chairman.*) When you went into these houses was there any obvious vitiation of the atmosphere?—In the bed-rooms there was especially. The bed-rooms were exceedingly close and very disagreeable.

8599. When you went into the room you felt it?—Very badly indeed.

8600. Supposing you had not had the instance of this exempted block of houses near to contrast with it, would the amount of mortality in the other block have astonished you from what you knew of it?—I should have felt rather surprised, considering the good drainage.

8601. (*Mr. Bateman.*) How do you make the analysis of the circumstances of these houses coincide with the opinion which you expressed a short time since, that you thought that the use of the Whittle Dean water would rather induce disease during that time?—I think it would.

8602. But here is a case in which the inhabitants of a block of houses using Whittle Dean water do not appear to have been affected?—None with cholera; they did, however, suffer slightly from diarrhœa, but not so much as the others; and they were under very careful medical surveillance the whole of the time.

8603. I understand you also to say that there was less sickness there, comparing that block of houses with the rest of the district?—Much less sickness.

8604. (*Chairman.*) There were, in fact, thirteen deaths from cholera in a population of 417; that would be one in thirty-two. However, the ventilation was decidedly bad,

there was a certain amount of overcrowding, and the population was of a rather lower class and their habits not so favourable as in the other block?—Yes.

8605. There is an appreciable distinction between the sanitary condition of the two blocks, although not so great apparently as the difference in the mortality?—Yes.

8606. Do you know any other case equally striking with that?—No.

8607. That is probably the most startling case which you came across in Gateshead?—Yes.

8608. The impression derivable from those facts rather goes to confirm an idea of my own, viz., that overcrowding and the want of ventilation is habitually a more directly serious evil than the want of adequate drainage?—Yes.

(*Mr. Clephan.*) I quite think so. I think almost the whole facts of the epidemic will go to that conclusion. Overcrowding and the want of ventilation, I think, are the most powerful causes.

8609. (*Chairman.*) Dr. Jollie, I think, expressed an opinion coinciding with that, viz., that on the whole he thought the greatest sanitary evil probably was overcrowding?—(*Mr. Wilson.*) Yes, it is so.

8610. Would your opinion also concur with that which regards overcrowding and the vitiation of the atmosphere by overcrowding as the most serious of sanitary evils?—Yes.

8611. Upon that assumption, supposing it to be true that the vitiation of the atmosphere by overcrowding is the worst predisposing cause, the facts of the case of New Gateshead are not so unintelligible as they might otherwise be?—No.

8612. And you would be almost disposed to accept that explanation to a certain extent?—That is almost the only one which you can accept.

8613. Do you know of any other case which we can investigate, presenting anything like the same features as New Gateshead?—No, I may mention the particular exemption of the inmates of the workhouse from cholera; we had not one case of cholera there.

8614. Where is the workhouse?—It is situated on the high ground upon the hills. I do not think it is on the map before you.

8615. What was the number of inmates?—I think about 160 or 170.

8616. What would the workhouse properly hold?—(*Mr. Garbutt.*) 220.

8617. (*To Mr. Wilson.*) Then it was anything but overcrowded?—There was not much overcrowding.

8618. How many do you think it would hold properly, with a due regard to ventilation?—I have not considered that question; but we had a less number of inmates at that time than we had had for some time prior.

8619. Then you were not so crowded as usual?—No.

8620. Had you much diarrhœa?—We had some diarrhœa, but it was generally taken at the commencement and conquered.

8621. It was not very extensive?—No.

8622. Out of your 160 people, how many cases did you have?—I cannot say; so many slight cases occurred merely from fear that it is difficult to say.

8623. Had you any severe cases of diarrhœa?—No, it was always checked at the commencement. There was plenty of medicine on the spot, and one of the outbuildings was made into a hospital.

8624. You had nothing severe even in the form of choleraic diarrhœa?—No.

8625. The workhouse is well away from the rest of the town?—Yes.

8626. Is the ventilation good?—Not very good; the rooms are low.

8627. (*Mr. Bateman.*) But the situation is airy?—Very airy.

8628. (*Chairman.*) Under favourable circumstances, then, supposing cholera were to return here in 1854, and you not to be overcrowded in the workhouse, I suppose you would look forward to obtaining, at all events, a comparative immunity again?—I should entertain some anxiety with regard to it, considering the character of the inhabitants of the workhouse. Many of them are broken-down in constitution.

8629. Apart, however, from the personal characters and the damaged constitutions of the people, you would look forward to a comparative immunity?—I should.

8630. (*Mr. Clephan.*) Was there cholera in the workhouse in 1849?—I cannot say.

(*Mr. Garbutt.*) I think not in the workhouse. Persons affected were carried there.

8631. (*Chairman to Mr. Wilson.*) Do you doubt that cholera in so far follows the laws of other ordinary epidemics, such as typhus, that you may expect the same immunity from cholera under proper sanitary arrangements which we obtain in respect of typhus by proper sanitary arrangements in prisons and workhouses, and so on?—I think so.

8632. You do not see any reason to doubt it?—None at all.

8633. There is no doubt something peculiar as to the origin of cholera. We do not seem to breed it on the spot as we do typhus?—No, I think not.

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8634. But after it has made its appearance, you can arrest it in the form o diarrhœa, and you can prevent its development into a fatal form as completely as you can typhus by proper arrangements as to diet and sanitary conditions?—Just so.

8635. (*Mr. Clephan.*) Is it contagious?—I think so.

8636. (*Mr. Bateman.*) In that opinion you differ from a considerable number of your professional brethren, do you not?—There is a division in the profession.

8637. (*Mr. Clephan.*) You do not mean that it depends upon contagion for its transmission altogether?—No, by no means.

8638. (*Mr. Bateman.*) Do you believe that it may be conveyed from person to person, the person to whom it is conveyed not having lived in the same air as the person who caught it?—I think so.

8639. (*Chairman.*) Taking this case: Supposing I inhabit a very unhealthy district and there catch it, and with the disease upon me go and stay with a friend of mine who lives in a model house in a healthy district, do you think that he or any of his family would be likely to take it?—I should think they would not be very much predisposed to it; but if they were predisposed to cholera, they would easily take it. You must take the poison with you; they would not have it unless you took the poison, even if they were predisposed.

8640. You have been good enough to put in a report on the sanitary condition of the various localities in the northern district of the Gateshead Union. I think we have anticipated by our questions a good deal of the evidence in this report?—I think about the whole of it.

8641. You put in this report and this table, however, for us to make such use of as on re-perusal of your evidence may seem to be requisite?—I do so.

8642. Does any other point occur to yourself on which we have not elicited your opinion?—I may mention that the first case of cholera which I had was on the 4th of September. On the Sunday, the day following, the inspector of nuisances was most willing to adopt whatever system for cleansing the parts of the town I might advise.

8643. At the moment the epidemic came upon you the authorities no doubt acted most vigorously and energetically to meet the thing?—Yes; and commenced whitewashing and supplying lime to whitewash the premises.

8644. In stating that I suppose you would also be of opinion that no amount of energy displayed on the spur of the moment, when the epidemic is upon you, will compensate for any degree of negligence that may have been shown in preventing the advent of it—It will not compensate for it.

8645. They were energetic in endeavouring to cure, but were unable to remedy the want of previous prevention?—Yes.

8646. I suppose you entertain no doubt upon the subject of the efficacy of house-to-house visitation?—Not the slightest.

8647. Would you like to express any opinion upon the conduct of the Board of Health officers?—No.

8648. Do you think you have any reason to be dissatisfied with the efforts of the officers sent down by the General Board of Health?—No.

8649. You were perfectly satisfied?—Perfectly so.

8650. Have any complaints been made of them on this side of the water?—The General Board of Health had not much to do in Gateshead.

8651. (*Mr. Bateman.*) Had they anything to do materially with Gateshead?—At first Mr. Grainger visited us, and he gave us very excellent advice, which we were very anxious to carry out; that was in the house-to-house visitation,

8652. After that did he very much interfere with your proceedings?—Not afterwards.

8653. (*Chairman.*) You were left to manage for yourselves?—Yes.

The following is the Report by Mr. Wilson, alluded to in his evidence foregoing:

REPORT on the SANITARY CONDITION of the various localities in the Northern District of the GATESHEAD UNION, where CHOLERA during the late very fatal epidemic prevailed.

On the first appearance of the cholera, I divided the district into seven sub-districts, viz.:

1. Pipewellgate.
2. Hillgate.
3. Barn Close.
4. Oakwellgate.
5. Eastern or South Shore.
6. Durham Road (west side of High Street).
7. Sunderland Road (east side of High Street).

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To each of these a medical visitor was appointed, whose duties were to go from house to house, and inquire into the state of the health of the inmates; to treat all cases of simple diarrhœa, and at once to report to me every case of approaching cholera or cholera; and I am enabled from my daily and nightly visitations to these several localities, to draw up a brief account of their sanitary condition, and thus to form an opinion as to the causes which predisposed the inhabitants to the outbreak.

As could have been predicted, the epidemic has chiefly been confined to those places where the most defective drainage and ventilation and the greatest overcrowding have prevailed.

In *Pipewellgate* and *Hillgate* the disease has been most rife and fatal; and to detect the reason of this but a cursory consideration is required. These streets are very narrow and ill paved; and passing off from them at right angles are numerous very close and confined alleys and courts. On the north side of these streets, the alleys open upon the river, but on the south they are built against the bankside; consequently their walls are always in a damp state; ventilation and drainage are almost wholly neglected; the whole of the dirty water and general refuse from the houses on the bank on the south of Pipewellgate runs down openly into this street, and here again, openly for some distance, until it can escape into the river by some other narrow alley. And not only does the refuse from these dwelling-houses drain into Pipewellgate and Hillgate, but also the most filthy and noxious washings from triperies, and very offensively smelling fluids from glue manufactories and a fellmongery; so that, in truth, those two streets are in themselves little better than open sewers, while in many of the alleys leading from them to the river large collections of decaying vegetable and human excrementitious matter may always be found. This is especially the case in Pipewellgate, for Hillgate can boast of having a few gratings in it to drain off fluids.

In these sub-districts there are no water-closets, and but very few privies, and these are for the most part so filthy as to be unfit for use. The female part of the inhabitants and children are compelled to obey the necessities of life in their own dwellings, which usually consist each of a single room, and the refuse is allowed to drain openly into the narrow streets below, or else is thrown upon the open bank, whereby the atmosphere is constantly and very liberally supplied with the most pestiferous effluvia.

Overcrowding prevails, and in some cases to an extent almost incredible. For instance, in Pitman's Entry, Pipewellgate, is to be found a room about 12 feet square, in which exist twelve human beings, who gain a living by gathering coals and firewood out of the river at low water; and this apology for a dwelling serves as a store for large quantities of these wet materials, as well as the abode of these twelve miserable beings.

Registered lodging-houses have been but lightly visited with the disease.

The *Barn Close District* consists of a number of streets of but recent erection, Brunswick, Mulgrave, Ocean, Russell Terraces; Melbourne, Grosvenor, Victoria, William, and Pollock Streets. The houses are principally two storied. Many have cellar rooms, and are for the most part tenemented, though erected for occupation as single dwellings. The cellars are generally occupied by the very poor, including many Irish. Each house has a flagged back yard, in which is a water tap, sink for dirty water, privy, and ash-pit. Sewerage is very incomplete, and the streets are for the most part either partially paved or not at all. The back yards are in most instances clean and orderly.

In Grosvenor and Victoria Streets the cellars are approached from the back yards by outside stone steps. At the foot of each flight is a small grate in connection with a drain, for the purpose of draining off any water that may here collect. But these drains are so imperfect as to permit a back flow of dirty and polluted water, which gives off most offensive and pernicious effluvia at the very thresholds of the dwellings.

In Brunswick Terrace, at the lower or north end, the yards are completely boxed in. Indeed, a back flagged room forms the yard, in which is a privy, ash-pit, water-tap, and untrapped sink; and immediately above there is a room, forming in some cases the sole dwelling for a family.

The first case of cholera in the epidemic of 1853 occurred in Victoria Street, and the victims of that justly dreaded disease in this sub-district were chiefly amongst the occupants of the cellars there. The imperfect drainage, the privy collections, and the contiguity of the houses of this sub-district, (both of the better and tenemented class,) killing-shops, and other generators of foul effluvia open to our view powerful predisposing causes to disease generally; and that cholera should seize upon some of the occupants o these houses for its victims need excite but little surprise.

The *Oakwellgate District* comprehends that part of the town extending from Cannon Street to Oakwellgate Chare, and bounded on the west by High Street. It includes Garden Street, Oakwellgate Chare, and the courts, &c., east of Oakwellgate Street. Here also the disease has been most rife, and here, as in the other mentioned districts, it has chiefly prevailed in the numerous confined and dirty courts. Some of the courts are clean and well kept; and as an example of this, Woolston's Yard may be named; but this is hemmed in by numerous buildings and other courts but indifferently maintained, by far the majority of them being ill paved and drained, and badly ventilated. There

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are few and miserably kept privies and overflowing ashpits. Bakehouse Entry may be mentioned as a place where not only cholera but disease generally luxuriates, and the filthy privy and ashpit, bad drain, and crowded rooms, will immediately account for this. Oakwellgate Lane is a dirty, narrow, badly and partially paved lane, with tenemented houses. There are no privies nor middens. The dirty water is thrown into a channel in front of the houses, and from the uneven state of the surface, it escapes but by evaporation. The houses are also frequently damp and overcrowded.

Sunderland Road District comprehends the east side of High Street from Oakwellgate Chare southwards, and consists chiefly of courts and narrow lanes leading therefrom.

Union Lane and Leonard's Court deserve particular notice. In the former the houses, which are all tenemented, occupy one side of the lane, and two or three yards in their front is a high wall, at the lower part of which are several openings, serving for the passage of foul liquids and solids from the houses on the other side the wall. These deposit themselves before the doors and windows in Union Lane, much to the annoyance and injury of the inhabitants, who bitterly complain of the nuisance. Drainage is very imperfect, and privy accommodation altogether wanting.

It will be difficult indeed to find words to describe the condition of Leonard's Court. It is what is commonly called a blind court (a *cul de sac*). It is unpaved and undrained. The surface is very uneven, and retains not only the whole of the dirty water from the houses fronting the court, but also much foul matter of other kinds, which is everywhere scattered about. Narrow and filthy passages lead to close, confined, and unpaved back yards, where the whole surface is completely covered by the polluting filth. A privy may be seen literally flooded with liquid ordure, and in some the total absence of anything like drainage causes water to be retained until it becomes green with vegetation, and over which you have to pass upon stepping-stones before you can reach the habitations. Everywhere you are assailed with most offensive odours. The occupants of these houses are almost wholly poor Irish, and when I say that their habits generally (as is to be expected) are in keeping with the place, some idea may be formed as to the internal condition of the dwellings. Cholera here made sad havoc, and now fever claims its turn. Indeed, it is a constant and favourite haunt of disease. All trace of superficial cleansing which this place underwent, on the outbreak of cholera in September, is now about lost sight of, and things are again assuming their wonted appearance. In this district are also several new streets, which are totally unpaved and undrained. These may be described as being bounded by Nun's Lane, Park Street, and High Street. The furrows which here exist enable much water to become stagnant, and the houses are badly ventilated. Many are tenemented, but cleanliness and good order is generally maintained within. Here also cholera claimed some victims.

Durham Road District forms the counterpart of the last-mentioned division. It extends southward from the railway arch in High Street. Here the most of my patients occupied houses in confined courts and alleys leading from High Street, such, for instance, as Powell's Yard in Busy Burn, Marshall's Yard, and Gordon's Yard. Some also inhabited those houses which have been recently built in Lambton Terrace and Nelson Street, chiefly the dark, ill-ventilated, and unwholesome cellars which there exist. The courts, &c., in this district are in much the same state as those mentioned in other districts; but, happily, we have no Leonard's Court.

The *Eastern or South Shore District* is very wide, stretching from East Street and Hillgate End as far as Friar's Goose, having the river on the north and Sunderland Road on the south. In this division are many large manufactories, the chief and most extensive of which are iron and chemical works on the banks of the Tyne. It includes a colliery, glassworks, &c. In their immediate neighbourhood are many very irregularly built houses, which are for the most part tenemented, and occupied by mechanics and labourers. Here we find sanitary measures but little heeded, as by far the greater part of the houses are ill-ventilated, have badly situated and overflowing ashpits, no privies, nor any drainage, and water in many cases has to be brought from distant sources. Besides these there are some clumps of new houses, two of which are openly situated a little east of Gateshead, each cluster comprising two or three rows of two-storied houses. Both are on the same elevation and exposed to similar atmospheric influences, are well drained and liberally supplied with water from the same source; the one cluster have privies, the other water-closets. Yet in the one disease has been very rife and mortality great, while in the other there has not been a single death, and a very few cases of diarrhœa only. Those houses, however, in which the disease has prevailed are tenemented, and are constructed so as not to allow a free passage of air through them, and in many cases a single apartment is used by a family for both a day and sleeping room. Cleanliness, and not very much overcrowding, is observed. To each house is a water-closet. The occupants are chiefly mechanics. The more healthy set of houses are so planned as to afford a constant current of air through both flats, and are, in fact, called by the tenants draughty. Each house is here occupied by one family, and the upper rooms are used as sleeping apartments only, and each of these dwellings has a well-kept privy.

4, *Melbourne Street, November* 1853.

R. H. Wilson,
Medical Officer.

SUMMARY of CASES of CHOLERAIC DISEASE coming under the treatment of the Medical Officer, and discovered and treated by the Medical Visitors. *R. H. Wilson, Esq.*

8th March 1854.

North District, consisting of the undermentioned Sub-districts.

Date 1853.	Pipewellgate Sub-District.			Hillgate Sub-District.			Barn Close Sub-District.			Oakwellgate Sub-District.			Eastern or South Shore Sub-District.			Durham Road Sub-District.			Sunderland Road Sub-District.			Total for the North District.			Number of Deaths occurring from each day's cases of Cholera.
	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	Cholera.	Approaching Cholera.	Diarrhœa.	
Sept. 4	1																	1			1		3	1
" 5	3			1			1			1											1		8	1
" 6																							4	
" 7							1											1			1		3	
" 8																							9	1
" 9										1													7	1
" 10	3																	1			1		8	3
" 11	3			1														1			4		17	1
" 12	6						1						1								5		31	3
" 13	3			3			1									1		1	2		11		35	9
" 14	7		5	1		1	1			1		4				1			2		14		118	9
" 15	1		2	8			2			13		3	3			1		28	4		32		133	17
" 16	6	1		8			3			9		3				1		4	3		35		167	12
" 17	6			5		5	3			4		3	26		12	1		6	3		25		124	11
" 18	7			4			2			5		3	13		1	1		19	2		27		93	14
" 19	5	1		15		1	1			2		3	5		1	2		13	5		22		93	9
" 20	4			21		1	1			5		3	11		1	1		9	5		14		93	12
" 21	3			8		1	1			2		1	4		1	2		8	1		19		84	
" 22	1			3		1				1			10		1	1		12	1		9		89	4
" 23	1			3		1							4		1	1		14	1		9		55	5
" 24	1			5		1							5			1		9	1		11		35	8
" 25	4			1			1			4			6			1		8	1		9		44	8
" 26	1			1			1			1		1	8		1	1		5	1		7		41	3
" 27	2			4			1						5			1		8	1		8		60	3
" 28	12			15			2			4			8			1		4	1		13		72	4
" 29	1			4			1			8			14		1	1		3	1		12		46	1
" 30	1			11			1			8			10		1	1		4	1		9		36	1
Oct. 1	1			6			2			5			10		1	1		3	1		7		34	1
" 2	1			5						2			5			1		3	1		9		20	
" 3				4			1			1			1			1		2	1		8		19	
" 4				4						1			1					1			5		19	
" 5				4																	5		14	
" 6				4																	3		10	
" 7				1									1					1			1		15	
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" 19				1		2												2					6	
Nov. 6	1																				1			1
" 7	1																				1			1
" 12	1																							1
Total Diarrhœa from Oct. 19 to Nov. 12																							99	
TOTAL	71	16	235	49	9	190	29	5	207	47	23	205	15	12	213	19	20	168	34	18	287	264	103	1,721	159

TOTAL CHOLERAIC DISEASE attended by the Medical Officer, &c., in the North District, with the Number of Deaths from Cholera, and from Diarrhœa or Bilious Purging.

Disease.	No. of Cases.	No. of Deaths.
Cholera - - - - - - -	264	159
Approaching Cholera - - - -	103	–
Diarrhœa - - - - - - -	1,721	6
Total - - - -	2,088	165

Total Number of Deaths from Cholera and Diarrhœa during the late outbreak—433.

R. H. WILSON.
Medical Officer.

CORNELIUS GARBUTT, Esq., examined. *C. Garbutt, Esq.*

8654. (*Chairman.*) You are chairman of the Board of Guardians for the Gateshead Union?—I am.

8655. You have been present here the whole day, and you have heard the evidence given by Mr. Brady, by Dr. Jollie, and by Mr. Wilson, as also the few answers that

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were given by Mr. Kell and other persons; have you any reason to dissent from the opinions expressed there so far as you know?—Not at all.

8656. Pretty strong opinions have been expressed as regards the connexion which exists between the virulence of cholera and bad sanitary condition, filth, and so on; upon that point you would agree also?—Perfectly.

8657. And it has also been stated that considerable districts of the town were in a very bad sanitary state; do you agree in that also?—Pretty generally.

8658. And that with the exception of certain external points, such as paving, scavenging, and sewering the main thoroughfares, the town at large, especially the poorer districts, which constitute the ordinary seats of disease, have not been materially improved of late years?—Not materially. I perfectly agree in the whole of the testimony which has preceded.

8659. Do you happen to be a member of the Local Board of Health?—Yes.

8660. The provisional order bringing Gateshead within the operation of the Public Health Act was dated 1st February 1851?—Yes.

8661. In the same year a supplemental public Act was passed, on the 7th of August, giving the force of a statute to that provisional order. Do you remember when the Board first began to exercise the powers thereby conferred upon it?—I believe not generally until 1852.

8662. What period in 1852 would it be?—It would be in the spring, I think; early in the year.

8663. You began to act in the spring of 1852?—I think so.

8664. Your byelaws I see, which I have gone through, and which refer to a great many details, bear date the 3d of March 1852?—Yes; I think that was about the time.

8665. That would imply, however, an attention to the subject of those byelwas on the part of the Board for some months before?—A considerable period before. Mr. Hall entered on his office as surveyor to the Board in the November previous.

8666. Then in fact the Board began its preliminary operations in the autumn of the same year in which the Public Health Act was applied to the town?—Yes.

8667. And in the spring of the next year you had already passed byelaws with regard to lodging-houses, street cleansing, nuisances, slaughter-houses, and great many other points?—Yes. At the commencing of beginning to work a new Act a little time is required to make the machinery perfect.

8668. (*Mr. Bateman.*) It took you that time to organise your machinery?—Yes; and from that time to the present the Board of Health have been very particular in giving their sanction to new erections, to see that they are proper, and that there was every convenience which was required about a house.

8669. (*Chairman.*) I suppose as chairman you must be cognizant of a good deal that has been done?—A great deal.

8670. Have you thought it requisite to appoint a medical officer under the 40th clause of your Public Health Act?—No; unless it has lately come under the consideration of the Public Health Committee, which I have not attended for the last three or four months.

8671. By the 40th section of the Public Health Act you are authorized, if requisite, to appoint a fit and proper person to be the medical officer?—Yes. We have not thought fit to do so, as far as I know.

8672. It has not been suggested at any time by or before the Board?—No.

8673. Has the town surveyor been directed to prepare a map?—He has not. We have a very good map of the borough.

8674. Some steps have been taken with a view to sewering the town, have they not?—For the partial sewering of it.

8675. But you have not deemed it requisite, with a view to those sewer proceedings, to cause any additional map to be made?—Until important sewerage works were required to be done, it was not thought necessary to have a map. An application was made by the Board to the Government surveyors for a copy of the Government survey, but it has not been obtained.

8676. (*Mr. Clephan.*) But you have a large portion of a map prepared?—Yes, of the east side of Gateshead there is a very large map now nearly finished, with a view to the laying down of a large sewer in that direction.

8677. (*Chairman.*) Then by the 43d to the 48th sections of the Public Health Act you are authorized to deal with the sewers. I suppose Mr. Kell, the clerk to your Board, would be the more proper person to give the details of what has been done.—Yes.

8678 By the 49th section of the Public Health Act it is enacted that it shall not be lawful newly to erect any house or to re-build any house which may have been pulled down, until drains have been constructed at such levels, and so on, as the surveyor shall consider requisite. Can you say whether that power has to your knowledge been put in force as fully as it might be?—It has been very rigorously carried out.

8679. We have not had distinct evidence upon the subject, but an allusion was made by Mr. Wilson to Nelson Street. The conclusion at which we seemed to arrive was that Nelson Street had, to all intents and purposes, been built before you got power; was that a correct statement?—Yes.

8680. With regard to the other street to which we alluded, Trinity Street, which has been built within the last year and a half, do you think that the surveillance of the town surveyor was exercised in respect of that as regards drains and levels, and everything?—As regards every house, after the Act came into operation.

8681. Then there is a further power to this effect, that "if at any time upon the report "of the surveyor it appear to the Local Board that any house, whether built before or "after the time when this Act is applied to the district in which it is situate, is without "any drain, or without such a drain as is sufficient," then the Local Board shall have power to compel the drainage of such house, supposing it be within 100 feet of a sewer capable of draining the house?—That has been partially acted upon in one or two instances.

8682. Your sewerage as I understand has been hitherto so deficient that there are not many houses probably within the prescribed 100 feet of any sewer?—No.

8683. But when it has been so, has that power of compelling houses within 100 feet of existing sewers to drain themselves, been put in force?—In one or two instances it has, but not generally. A street called Grahamsley Street is an illustration of that.

8684. Whereabouts is that?—That is south of here, leading westward out of the High Street.

8685. You have a sewer in that street draining into the High Street sewer?—Yes.

8686. Have you compelled the people in Grahamsley Street to drain their houses into that branch sewer?—Yes.

8687. Then to a certain extent you have applied your powers?—Yes.

8688. Do you find them adequate?—Quite adequate.

8689. You no doubt have some explanation to offer why you have not proceeded further?—I have no particular reasons to assign myself. A party was very backward in regard to his payment. In Claremont Place, situated on the West Side, it has also been compulsory. We have also wanted a great deal of money; we have not been able to borrow money.

8690. Would you say that you have exercised your power to the extent of the money that you have had?—Much beyond it; much beyond the patience of the people who have had to submit to the operation of having drains put in.

8691. (*Mr. Bateman.*) You have been going on somewhat faster than the people wished you to do?—Much faster; there were deputations out of number on occasions of that kind.

8692. (*Chairman.*) You have experienced difficulty in enforcing that power to the extent to which you might have wished to enforce it?—Yes; it was almost a point of contention with the various portions of the town, where it has been enforced of late; legal proceedings have almost had to be taken to compel it.

8693. People are not aware of the benefits of it?—No.

8694. (*Mr. Bateman.*) Do you find such a disinclination on the part of the people as to hamper your proceedings seriously?—Very much; there are of course exceptions to that.

8695. To such an extent as to induce you to give up works of benefit which you would otherwise carry out?—I think not.

8696. Only to postpone them?—It delays them a little while, but not so as to have them abandoned altogether.

8697. (*Chairman.*) I see a power to compel the construction of water-closets in factories; you have a good many factories about here; has that power been put in force?—I believe not; most of the manufactories here are very convenient to the river, which appears to be the water-closet of the whole neighbourhood.

8698. Do you think that that is a sufficient provision?—I will not pretend to say that it is so. There is one large manufactory here which has had iron tanks made for the refuse.

8699. Here power is given to you to exact a penalty of 20*l.* from any person refusing to obey your orders in providing a proper water-closet for his manufactory. You are not aware that that power has been put in use?—I believe not; I have no doubt it would be put into force provided some one were to complain of the defect of the necessary arrangement.

8700. Then there is a power of compelling persons, before building or rebuilding houses, to give notice to the Board with regard to levels, cellars, construction of privies, and cesspools, and so on; has your town surveyor taken advantage of that power?—Yes.

8701. Have you ever had occasion to exact the penalty from a person endeavouring to build or rebuild without giving such notice?—I believe in two instances it has been so.

8702. In two instances you have had occasion to exact fines?—Yes.

8703. Then the 54th section gives you power to provide that all drains, water-closets, privies, and cesspools shall be constructed and kept so as not to be a nuisance or injurious to health. I am afraid that that power has hardly been put in force. We shall get, I suppose, from Mr. Kell, the number of cases in which anything of that kind has been insisted upon?—Yes.

8704. We have had strong evidence to the effect that many such places are in a very sad state?—I have no doubt of it.

8705. The power has not been adequately exercised?—I dare say it has been exercised as well as you might expect, but not so well as it ought to have been.

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8706. (*Mr. Bateman.*) The reason being what?—The unwillingness of the parties to obey any orders given by the authorities unless compelled by law to do so.

8707. (*Chairman.*) The penalty, for not doing it, however, is 10*s.* a day?—Yes; we have had penalties imposed, and we have not been able to get them.

8708. Similarly as to surface cleansing, there are considerable powers given you here for cleansing the streets from all accumulations of filth. We have had evidence that accumulations of that kind nevertheless prevail very extensively?—They do prevail still; but Gateshead is not the place it was twenty years ago. I mean to say that there is a visible and a daily improvement taking place.

8709. Have you enforced that power to any extent?—Yes.

8710. You have an inspector of nuisances?—Yes.

8711. And he makes reports to you?—I am not aware that he does make reports, but he removes a nuisance where it is seen.

8712. Have you no record of the reports made by him relative to the nuisances which he in the discharge of his duty becomes acquainted with?—There may be, but I am not aware of it. I have not paid much attention to that point.

8713. Still you would be called upon to sign the book, would you not?—I am not chairman of that Board; I am chairman of the Board of Guardians only, and merely a member of that body.

8714. I suppose the same applies to the powers which you have to cause offensive ditches to be drained, cleansed, and covered, and to your powers for abating nuisances generally?—I dare say they are proceeded upon to the extent which the means would allow.

8715. That the rates would allow?—That the expenditure of the rates would allow, and the rate-payers think they have already had too much imposed upon them.

8716. (*Mr. Bateman.*) What amount of rate do you levy annually?—I really do not recollect at the present moment.

8717. (*Chairman.*) Where people are so ignorant as not to be aware of the results of these things, you ought hardly to consider so much what they wish or want as what they ought to want and wish?—No; our rates seem to have undergone a change of name. We have lost sightof the old ones in the shape of new ones, and our constituents say the new ones are much greater than the old ones.

8718. Do you think that there is a better feeling gradually diffusing itself; because if the same state of things which has prevailed hitherto were to continue for ever, I am afraid the enlightened portion of the public would not altogether have reason to be satisfied with it?—I dare say not; there seems to be a general wish to have things improved, but unfortunately they will not improve them at their own cost.

8719. Do you think that the feeling of the rate-payers in that respect is becoming more reasonable?—I think it is.

8720. The difficulties which you have experienced in the enforcement of powers, which unquestionably are not only desirable, but in the end, economical, you think are gradually passing away?—I think so. I think they are rapidly giving way.

8721. You look forward to a more satisfactory enforcement of those powers in future years than has hitherto, under the circumstances, been practicable?—Yes; I look forward to people having the things done as a pleasure, and not on compulsion only.

8722. I am quite sure that if you only get them to look into the statistics of expense and so on, you may convince them over and over again that every shilling spent in that way saves two expended in another?—Yes.

8723. I think you have issued regulations relative to slaughter-houses?—Yes.

8724. Have you enforced those regulations stringently?—Yes, we have, very stringently.

(*Mr. Superintendent of Police.*) There have been several convictions before the magistrates.

8725. (*To Mr. Garbutt.*) Your powers in respect of common lodging-houses both under the Public Health Act, and under the Common Lodging-houses Act, appear to have been so enforced as to produce a marked diminution of mortality in the houses under your surveillance?—Yes.

8726. As far as I can understand, that is one of the powers which you have most satisfactorily enforced?—Yes; by inspection and so on.

8727. In respect of slaughter-houses and common lodging-houses, your powers have been well put in operation?—Yes.

8728. As to the occupation of cellars, you have considerable powers under the 67th section; but we have had evidence to the effect that very undesirable cellar residences have been occupied; has there been anything to interfere with your putting that power into force?—The absence of a medical inspector, perhaps, would be one reason why it has not been brought before the Board.

8729. You have felt the want of a medical officer in that respect?—I am quite willing to admit the necessity of having one, but I dare say the other members of the Board may differ from me upon that point.

8730. Have your inspectors of nuisances any written instructions issued to them?—I believe they have; and the town surveyor, Mr. Hall, attends to any case immediately.

8731. Did you originally issue any list of instructions to your inspector of nuisances, directing him to take cognizance of the state of cellar residences?—I am not aware of anything, independently of those byelaws.

8732. (*Mr. Clephan.*) The town surveyor is the inspector of nuisances, is he not?—Yes.

8733. (*Chairman.*) Do you remember any instance in which a penalty has been exacted for the occupation of a cellar which was not fit for occupation?—I am not aware of any that has been attempted to be exacted.

8734. Do you remember any instance at all in which advantage has been taken of that power in respect of cellar residences?—I do not.

(*Mr. Superintendent of Police.*) Yes, there have been some closed. I know some have been closed, but Mr. Hall will be the person to explain it; he has the control of those matters.

8735. (*To Mr. Garbutt.*) With respect to the management of streets, the 69th section gives you power to compel the sewering, levelling, paving, flagging and channelling of private streets; I am afraid the private courts and entries of this town do not bear testimony to any extensive exercise of that power?—I may mention to you that Grahamsley Street was a private street; and there have been three or four instances of other streets or lanes having been done by the public.

8736. You have exercised your powers in that respect to a certain extent?—Yes.

8737. Do you also know that satisfactory results have attended the enforcement of those powers?—Yes.

8738. And you mean to proceed as fast as your ratepayers will let you?—Quite so.

8739. The 76th clause gives you power, on the report of the surveyor and under certain circumstances, to cause houses compulsorily to be supplied with water; do you know whether that power has been enforced?—I am not aware of any case having occurred.

8740. Has anything been done towards providing new burial grounds?—No; we have two comparatively new burying grounds in the place.

8741. When the old ones are shut up you still have adequate accommodation in that respect?—At present we have, but the quantity of ground is very limited, too small for the size of the place.

8742. You are at this moment bringing public baths and washhouses into operation?—Yes, they are in course of erection.

8743. Are you aware of any other impediments having been thrown in the way of the exercise of these powers by the Local Board, except the unwillingness of the ratepayers to pay rates?—I am not aware of any other impediment.

8744. Would you have expected *à priori* to have made a greater progress in the two years during which you have been in operation, or would you be satisfied with the progress which you have made?—We expected to do more than double the work which we have yet done.

8745. Have you any intimate acquaintance with the dwellings of the poorer classes?—No, I think not, with the exception of Hillgate and Pipewellgate. I know them to be very bad.

8746. Do you know much of them?—Yes, I have been through a good deal of them this last year; they are very bad.

8747. Why could not something more have been done, under the powers of the Local Board of Health, in the way of compelling the emptying of those privies and ashpits, and so on?—I believe it is in contemplation to insist upon those powers there.

8748. You have plenty of power?—Yes; to take the whole scavenging of the town.

8749. You have power enough to make a model town of it gradually?—Yes; but I am afraid not power to pull those old places down.

(*Mr. Clephan.*) I believe they are in a condition that is not mendable; and that there are many localities very much in the state that Pipewellgate and Hillgate are in, *i. e.* not to be improved.

8750. (*Mr. Bateman.*) Except by destruction in the first place?—Yes.

(*Mr. Wilkinson.*) They want knocking down from one end to the other.

(*Mr. Garbutt.*) That is the general impression.

8751. (*Chairman to Mr. Garbutt.*) When you say that is the general impression, has the subject been brought before you generally by any public discussion of it?—Yes, with reference to making a quay and a large market on the site of them.

8752. Are those matters seriously under consideration now?—They have been recently spoken of. Whether they may end, like other good proposals connected with the place, in nothing, I do not know.

8753. Do you not think that the emptying of privies and ashpits would have had a considerable effect upon the mortality in the last outbreak?—Yes; but you have had evidence to show that we have no privies and ashpits to empty.

8754. We have certainly strong evidence to the effect that there are very few, but still such as there are appear to have been in a very bad state?—Yes.

8755. You have experienced the beneficial effects of attending to the overcrowding in lodging-houses, have you any doubt that you would have similarly experienced beneficial effects in the other respect?—I have no doubt it will come in its turn before the council, and be acted upon to the benefit of the public health.

8756. You think that there is a serious intention on the part of the Local Board to carry out their powers when the difficulties are overcome?—In every case.

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8757. That they have merely been hampered by the unwillingness of the ratepayers, and that they have not been deterred from the intention of carrying out their powers? —No.

8758. With regard to the question of the water, do you usually yourself drink Whittle Dean water?—I did use it last year.

8759. Did you continue to use it during the time of the epidemic?—Until the beginning of October I did.

8760. Did you then alter your practice?—I then changed my habitation.

8761. What is your opinion as to the state of the water?—It was very bad from June up to the latter end of September, bad in taste; at times very ill-coloured, and when bright with a very filthy taste. There was no overcoming the bad taste of the water.

8762. It had a distinctly bad taste?—A distinctly fishy bad taste, as if fish had been washed in the water.

8763. (*Mr. Bateman.*) Had it any smell?—I cannot say that I perceived any smell.

8764. (*Chairman.*) The taste was not such as suggested merely the idea of sand or mud or anything of that kind being mixed with it?—No.

8765. It was more than that?—When it was filtered and when it was perfectly bright there was evidently decomposing matter in it.

8766. The taste obviously suggested to you decomposing animal matter?—Yes.

8767. That was in your own house?—Yes.

8768. (*Mr. Bateman.*) Even after it was filtered?—Yes.

8769. You mean filtered in your own house?—Yes; three or four weeks before we left that house, after filtering it in our own house, the taste was such that we could not drink it ourselves, and we were put to very serious inconvenience; we had to go to a distance to wells for drinking water; of course we were obliged for culinary and other purposes to use it against our will.

8770. (*Chairman.*) Do you think that this bad taste prevailed during the whole of those three or four weeks?—I have no hesitation in saying that it prevailed during almost the whole of the summer.

8771. As early as July, probably?—June and July; the water was beginning to be scarce at the beginning of the summer.

(*Mr. Clephan.*) I may state that during the last year a manufacturer brought to me a section of a pipe, the feed pipe of his engine, which was all but choked up. He used the Whittle Dean water, and this pipe, through which the cold water passed, was a pipe of considerable diameter; it was so filled up with deposit that there was only a narrow channel through the middle of it.

8772. (*Mr. Bateman to Mr. Clephan.*) Was it hard stony deposit?—Yes.

8773. (*Chairman to Mr. Garbutt.*) Had you a cistern in your own house, or did you draw direct from the pipes?—Direct from the pipes; we had tanks for washing and other things.

8774. The fact of the change in the quality of the water drawn from the same tap and filtered through the same filter was very obvious in those three months?—Quite. The taste at times was more or less obnoxious; but it was never entirely free from an offensive taste.

8775. Did you hear anything of ordinarily good well water being had on this side of the water?—No, I have no reason to believe it; because, while the Whittle Dean water was so bad, we had to send nearly a mile from my house for good water, and it was a great boon to us.

8776. (*Mr. Bateman.*) Did you ever perceive any similar taste in the Whittle Dean water in previous summers?—Yes.

8777. Is that the ordinary state of things in the summer?—It did not continue so long previously.

8778. But is it generally the case for a longer or shorter period in the summer?—I can only speak of two years experience of it.

8779. (*Chairman.*) Did you notice anything of the kind in the year 1852?—Yes; I believe that the pipes, where I was supplied, were not of the same kind as supplied the town here. I lived within a mile of a reservoir, and whether it was the ascending or the descending pipes that we were supplied from I do not know.

8780. (*Mr. Bateman.*) A reservoir on this side of the water?—Yes.

8781. (*Chairman.*) Were they very old pipes which had belonged to the old company? —Very possibly. I do not know where the supply was from; the pressure was very great at times.

8782. And in winter it was probably satisfactory?—Generally; after a flood of rain we had reason to complain of the water being muddy, but when filtered it was unobjectionable.

8783. (*Mr Bateman.*) That was colour, not taste?—Yes.

8784. (*Chairman.*) In the summer of 1852 did you also observe the same objection as to the taste?—Yes; but not so prominently.

8785. And previously to 1852 you did not take the Whittle Dean water yourself?—I did not notice it so much.

8786. Did you take any in the year 1850?—I have taken Whittle Dean water ever since it began.

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8787. Can you remember the year 1850?—I do not remember it so distinctly. I was a good deal from home that year.

8788. Have you anything to say as to the gas?—Only that there is a pretty general complaint about it, both of the badness of quality and the scarceness of quantity; but nothing particular of my own knowledge.

8789. Nothing beyond what you have heard?—No.

8790. Is there any other point on which you would like to offer any opinion?—I have no evidence to give, unless you wish to inquire.

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J. E. Wilkinson, Esq.

8791. (*Chairman.*) You are vice-chairman of the Board of Guardians here?—I am.

8792. You have heard the evidence given by the chairman of your Board, and as we propose to get information as to the poor rates and so on through your clerk, Mr. Foreman, we would not trouble you on those points. Have you anything to add to the evidence which Mr. Garbutt has given?—Nothing, I think, with regard to Gateshead. I live in the country, in the parish of Whickham.

8793. That is outside the borough of Gateshead?—Yes, but in the Gateshead Union.

8794. You agree, as far as your knowledge extends, in the evidence which you have heard given to-day?—I do most certainly, and the very same things occurred with us in the country that you had here, especially in the villages of Dunston and Swallwell. There we had the very same things; want of drainage, and want of privy accommodation, and the same results.

8795. Do you also think that a better tone is likely to prevail soon among the ratepayers of Gateshead?—I should think so.

8796. Matters are not getting worse in that respect?—No, certainly not; and I do not think that the town is getting worse either. I think it is improved.

8797. But the grief is that the improvement is in the part which least requires it; and it may be so long before the improvement reaches the poorer districts where the mortality is greatest that many valuable lives may be lost meantime.

8798. (*Mr. Bateman.*) Do you feel yourselves, as a Board, competent to grapple with the disinclination of the town to carry out the improvements, or would it be better to have any extraneous assistance?—I do not belong to the Local Board of Health, and am not competent to give an opinion.

(*Mr. Garbutt.*) Previously to the establishment of the Local Board of Health, the Board of Guardians had powers equivalent to theirs.

8799. (*Chairman.*) Under the Nuisances Removal Act, you mean?—Yes.

8800. Were they adequately put in force then, in 1849, I mean?—In 1849, when the cholera raged at Wrekenton, it was under the Board of Guardians, and they did exert themselves and effected a very great change.

8801. How many years have you been chairman of the Board?—Three years.

8802. Were you a member of the Board in 1849?—No, but I was here and cognizant of what took place.

8803. Do I understand you to say, that in 1849 the powers of the Nuisances Removal Act were adequately put in force?—No, not as they ought to have been.

8804. And from the time of 1849 until the constitution of your Local Board of Health in 1851, for those two years, the Nuisances Removal Act was not in force at all, I suppose?—Not generally.

8805. Did they enforce it occasionally?—Yes, there were occasionally convictions; but from some technical objections, which I do not remember, they were set aside.

(*Mr. Superintendent of Police.*) There were several parties convicted.

(*Mr. Wilkinson.*) I do not think that the cholera in the country districts has been anything like so severe since 1831 and 1832. Neither in 1849 nor in 1853 has it been so severe in the country as it was then.

8806. (*Chairman.*) Nothing could be much worse than the cholera in 1849 in Wrekenton?—But I am speaking of our district.

(*Mr. Garbutt.*) Wrekenton is a portion of Gateshead Proper; it is not a separate town.

Mr. DAVID DARLING MAIN, examined.

Mr. D. D. Main.

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8807. (*Chairman.*) We had some evidence given here yesterday as to the water. Mr. Garbutt, the chairman of the Board of Guardians here, stated that the water had an unpleasant taste, a fishy taste; and what he stated, which was new to us, was that in the year 1852 he had noticed the same thing, and that he thought the water on this side was habitually not very good; that there was a fishy taste for a longer or shorter time in the summer, suggesting the idea of decomposing matter; and he gave us an instance where a pipe had been taken up and found to be in a very choked up condition, suggesting that the water might have been habitually foul. That was the only evidence which, in any degree affected you?—I think perhaps the fishy taste arose from the Carr's Hill

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reservoirs, which are on the Gateshead side of the water. We take out the weeds there at certain times, and when we take them out, we find that they do create a taste for a day or a little longer.

8808. Then you think it possible that that taste would occasionally happen, even in other summers besides that of 1853?—I think it did. It would not occur more than perhaps twice throughout the summer when we are cutting the weeds.

8809. (*Mr. Bateman.*) What depth is your reservoir?—It is about eight feet deep, I think.

8810. How are your sides; are they paved?—No.

8811. Merely earthen slopes?—Just earthen slopes.

8812. Then the vegetation would be very rapid there in summer?—The vegetation is much more rapid there than in any other of our reservoirs on that account.

8813. (*Chairman.*) Firstly, then with reference to the number of self-contained houses which you supply in Gateshead; what number of self-contained houses do you supply above the annual rental of 10*l.*?—433.

8814. How many of the self-contained houses of a rental below 10*l.* do you supply?—189. Gateshead is much the same as Newcastle in respect of the large proportion of tenemented property which exists there.

8815. With reference to tenemented houses, how many tenants do you supply, occupying each four rooms or more?—Nineteen.

8816. And how many tenants do you supply occupying three rooms each?—Sixty-eight.

8817. How many tenants occupying two rooms each?—920.

8818. And occupying one room each?—2,011.

8819. Have you computed the amount of population which is supplied?—I think we supply nearly 19,000 of the population.

8820. (*Mr. Bateman.*) The gross population of the place being estimated to be what?—About 25,000, Gateshead alone.

8821. You supply nearly four-fifths of the whole?—Yes; the number of self-contained houses of a rental above 10*l.* that were supplied before the Whittle Dean Company got possession of the old works was seventy-five; under 10*l.*, eighteen. The people in tenements had not a supply at all.

8822. Altogether ninety-three houses were supplied in Gateshead?—Ninety-three was the whole number that were supplied.

8823. And the population at that time was what?—In 1845 the population would be 20,000.

8824. (*Chairman.*) They had then a very much larger well and spring supply in Gateshead than they have now, had they not?—I am not aware that they had. A gentleman behind suggests the pants; of course when I said that they were not supplied, I meant supplied at home.

8825. We have, in a report by Dr. Charlton, presented in 1847 to the Newcastle and Gateshead Sanitary Association, statements to this effect, that a good well formerly existed on the bank top which had been recently rendered unfit for drinking by certain circumstances; that a few years ago Pipewellgate could boast of several excellent springs, but that since the sinking of Mr. Easton's pit in the eastern part of Gateshead, most of the wells had ceased to flow, and all that kind of thing. I suppose you would not dispute the fact that ten or fifteen years ago a very considerable proportion of the population of Gateshead was well supplied with well and spring water?—I think it is very likely.

(*Mr. Superintendent of Police.*) This house was very largely supplied with water from an excellent well about twenty yards at the back here; and the digging the foundation of the High Level Bridge took it all away.

8826. (*Chairman.*) That is the impression which I have derived, viz., that within the last ten years what may be called the natural supply of Gateshead has been very much interfered with in different ways. (*To Mr. Main.*) Can you give us a return of the number of water-closets which you supply in Gateshead?—64: and the account is taken in the same way as in Newcastle, viz., one water-closet only is charged for in a house.

8827. That then represents 64 houses having fecal drainage?—Yes.

8828. And you would regard, I suppose, the evidence which we took in Newcastle with respect to the water as applying to Gateshead, with the exception of a few local circumstances, such as you have alluded to, the difference of the form of construction of your Carr's Hill reservoir, the difference in the amount of vegetation there present, and the difference that these might make in the quality of the water?—Yes; the water supplied to Newcastle and that supplied to Gateshead are the same.

8829. Can you give us the number of taps which you have in Gateshead?—I have not brought it with me. I have it and will send it to you.

Mr. D. D. Main.

9th March 1854.

The following is a copy of the document afterwards sent in.

The total number of water taps in Gateshead is - - - - - - -	1182
Of these, the number for supplying manufactories, tanneries, breweries, public-houses, offices, shops, churches, chapels, and public institutions, is - -	134
The number of taps inside the premises for the supply of self-contained dwelling houses and tenemented property is - - - - - -	899
[I estimate the population in Gateshead, thus supplied, to be 10,025.]	
The number of outside taps for the supply of tenemented property is - -	149
[The number of the population supplied in this manner is probably about 8,175.]	
	1182

D. D. MAIN.

(*Mr. Main.*) I might mention that the proportion of outside taps is greater in Gateshead than in Newcastle.

8830. Even in Newcastle the number of inside taps is comparatively small?—Yes.

8831. In Gateshead also I suppose, as in Newcastle, even self-contained houses have not often taps inside the house, as distinguished from inside the court, the yard or the premises?—No; they generally have it in the yard, but in the case of tenemented property the taps are entirely outside, in the street; and they are more numerous in Gateshead, in proportion to the population, than they are in Newcastle.

8832. In Newcastle you have carried them more frequently out of the main street into the yard or alley than you have in Gateshead?—Yes.

8833. Is there any further information which you would like to put in?—I have no other information to put in, except that Gateshead is under the Health of Towns Act, and that it might be supposed that the supply to tenemented property was more extensive comparatively than in Newcastle, on account of the clause to that effect.

8834. Having reference to the 76th clause of the Public Health Act, authorising the Local Board of Health to compel houses to be supplied, what do you think in respect of the tenemented property here?—It is not better supplied here than in Newcastle, although such a clause exists; because practically that clause does not apply either to Newcastle or to Gateshead. The clause obliges a landlord on the report of the Local Board to give a supply to his tenants, provided the water company will supply the house at 2*d.* per week. If it had been to supply the tenement or the part of the house occupied by each family at 2*d.* per week, it would have been done; but where it is to supply a whole house, containing ten or a dozen tenants and families, it cannot be done for that sum.

8835. It is enacted, "That if upon the report of the surveyor it appear to the Local "Board of Health that any house is without a proper supply of water, and that such a "supply of water can be furnished thereto at a rate not exceeding 2*d.* per week," the Local Board has power to compel it. That would be between 8*s.* and 9*s.* a year?—Yes; we supply a single tenant or family at 5*s.* a year; but we could not supply half a dozen or more families for 9*s.* In fact there was one case in Gateshead where they wished to apply that clause; and I pointed out to the borough surveyor, Mr. Hall, and to Mr. Kell, the town clerk, that they would not be able perhaps to enforce the clause in consequence of the word "house" being used there.

8836. Owing to the limited construction which may be put upon the word "house," the compulsory power, which apparently has been given to the Local Board of Health, has not been acted upon?—Exactly so.

W. Hall, Esq. CE.

WILLIAM HALL, Esq., C.E., examined.

8837. (*Chairman.*) You are surveyor for the borough of Gateshead?—Yes.

8838. How long have you been so?—About two years and three months.

8839. During which time you have been contemplating works of different kinds, and have made yourself acquainted with the physical situation and condition of the town?—Yes.

8840. Gateshead is situated, speaking generally, on a steep slope from the southward down to the banks of the Tyne?—Yes, very steep.

8841. So steep that in many parts of the town the access north and south is by means of long flights of stairs?—Yes.

8842. Steep enough and abrupt enough, according to Mr. Rawlinson's report, to be occasionally the source of danger, and even of serious accidents?—Yes; such is the case.

8843. It is there stated by Mr. Kell, who was speaking of the physical condition of the town generally, that the ground rises rapidly, in some places very steeply, from the brink of the river to the height of about 90 feet?—Yes; fully that.

8844. You have then immediately along the bank a very steep slope rising to the height of about 90 feet, or upwards?—Yes.

8845. From that point, say from the height of 95 feet, the land continues to rise more gently, as here stated at the rate of 220 feet per mile, until it reaches the height of 200 feet at least?—Yes. I should think that is continued until it rises 500 feet.

8846. It is stated here that, after reaching the height of 200 or 300 feet, it rises more rapidly again till it attains that height?—Yes; those are the general features of the contour of the country.

W. Hall, Esq., C.E.

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8847. A considerable proportion of the area of the borough lies at a height of from 100 to 200 feet at least?—Yes.

8848. Are there in the borough any very low places, such as would be liable to be flooded by the waters of the Tyne from above?—Pipewellgate and Hillgate are upon the verge of the water; they are a little above the highest floods.

8849. What is the level of those places, of your lowest streets in fact, above high water spring tides?—I cannot say exactly to a foot, but I should think that the street of Hillgate is somewhere about 5 feet above high water spring tides. If you take the street to where it goes down to the river it will be very little above indeed.

8850. The houses between the street of Hillgate and the river are some of them built into the water almost?—Not quite.

8851. Is Pipewellgate lower than Hillgate?—I think portions of it are.

8852. Then we may say that you have one very considerable thoroughfare along the banks of the Tyne, which will be only from four to five feet above the level of high water?—Yes, of high water spring tide.

8853. Do you think that the soil thereabouts is liable to saturation with water from below?—Yes, no doubt, from capillary attraction.

8854. Then the physical condition, in that respect, of the foundations of Pipewellgate and Hillgate will be rather more unfavourable than the physical condition say of the Close or of Sandgate in Newcastle, where you have fine clear dry sand?—No doubt.

8855. (*Mr. Bateman.*) Does it ever happen that the houses or rather the ends of the alleys which approach the river are covered with water?—I believe they are; but I cannot speak to that point.

8856. Probably when there is not only a high spring tide but a flood at the same time?—Yes. I cannot speak definitely upon that point.

8857. (*Chairman to Mr. Clephan.*) Do you ever remember Pipewellgate itself being flooded by the river?—I cannot remember it.

(*Mr. Superintendent of Police.*) I have seen it come up the openings out of Pipewellgate to within about three or four yards of the street, when there has been both flood and tide, till you would have thought sometimes that it would soon get into the street.

8858. (*To Mr. Hall.*) Speaking generally of the place, would you say that it afforded you great natural facilities for drainage or otherwise?—No doubt; from being situated on a bank, a great portion both of Pipewellgate and Hillgate affords facilities for drainage.

8859. I am speaking of the whole borough now?—Great facilities for carrying off the sewage water rapidly in every part.

8860. The great rapidity of the slope would to a certain extent present a difficulty, but not any serious obstacle, would it?—No; I think not. It requires a careful apportioning of the size of the sewers to the amount of drainage to be taken off a particular area.

8861. (*Mr. Bateman.*) And a good construction of the sewers to prevent their being torn up?—Yes.

8862. (*Chairman.*) The natural features and the physical situation are such as to afford a competent engineer great facilities for adequately draining the town?—Yes.

8863. With reference to the nature of the soil it was stated by Mr. Town Clerk Kell, in his report to Mr. Rawlinson, that the surface soil is principally a brown loam resting upon a retentive yellow clay of variable thickness, in many places underlaid by a still more tenacious blue clay, with beds of dry or quicksand in it, and with fine sandstone below, which in many parts of the borough rises to the surface. That would be generally an accurate description of the geology?—Yes.

8864. With regard to this top stratum of brown loam, does it ever, as on the other side of the water, approach pretty nearly to a clay?—It varies very much throughout the whole borough.

8865. The upper stratum of loam varies considerably, and would in parts approach the nature of clay?—Yes.

8866. Have you any brickfields upon this side?—Yes; several.

8867. In which this brown loam or clay is made into bricks?—Yes.

8868. So that we may say, as on the other side of the water, that it is a soil varying from the quality of loam to the quality of brick-clay?—Yes.

8869. So as to be very considerably retentive of water, and to require systematic surface drainage to keep the ground wholesome as building-ground?—Yes; that is very much the case; for instance, in the high parts of Hillgate, in the churchyard there, there is a very retentive clay indeed, so much so that I believe when burials took place there that coffins were often lowered actually into water, the clay was so retentive; and yet, perhaps 100 yards farther south, you come upon a bed of beautiful sand.

8870. At the other end of the churchyard?—Higher up the hill rather, not exactly in the churchyard, but a little farther south. I may add that a little farther south still, you come to the sandstone, which lies on the top of the coal, for the coal crops out in that part of the town and extends away in the neighbourhood of Union Row. That sandstone is a very fine stone for building purposes, and a great portion of the main sewer in High Street is cut through it.

8871. You have no fens or marshes in any part of the borough, have you?—No; at the very west end of the borough, however, there is what approaches to the nature of a fen, the Hassocks.

8872. Is there much building there?—No; there is no building.

8873. Then as regards the inhabited parts of the borough, we may say that there is no fen or marsh?—No.

8874. Any very unhealthy soil anywhere, containing a great quantity of decomposing vegetable matter?—None.

8875. With reference to the form of house construction which is prevalent in the borough, it is a fact, I believe, that in the lower parts of the town, on that steep slope into the river, a considerable proportion of the houses are built in narrow blind courts and back to back?—Yes, that is the case. You allude to Pipewellgate and Hillgate more particularly.

8876. And the courts out of them?—Yes; that is from the top of the banks down to the river.

8877. And in addition to the fact that the houses there are built back to back, you also have a considerable proportion of houses built into the banks, as it were, with their sides or backs against the bank of earth?—Yes. Here is a plan which will show that that is the case; and it is often the case also, that the privy and ash-pit are placed on the slope above the house.

8878. The bottom of the cesspool attached to the privy being two or three feet below the level of the slope?—Yes. But soil-pit is a more appropriate term than cesspool here.

8879. The liquid matter then of that soil-pit will continually be infiltrating into the earth of the slope?—Yes.

8880. And the natural gravitation of the water charged with that sewage matter will cause it to descend towards and against the side of the house, and to soak into the porous brickwork of the wall?—Yes, indeed I have often observed that the excrementitious matter soaking into the walls of the house rises up to the higher parts of it.

8881. Would you say, speaking of the whole slope along the river side, including Pipewellgate and Hillgate, that it is a frequent thing to notice circumstances of that sort?—Yes; it does not always happen that the privy is placed above the house to which it belongs; but, if it is placed on the lower side of that house, it is above the next house, and in this way, on this steep slope, sooner or later, it reaches some house or other.

8882. The slope is so steep, that the infiltrations from the soil-pits attached to these privies will pretty certainly reach some house or another, wherever the buildings are at all continuous?—Yes.

8883. Then considering those two points together, houses built back to back, or into the bank, a very large proportion of the houses along that slope must necessarily be very deficient in proper ventilation?—Very deficient.

8884. Besides these points, is it common to find cellar dwellings?—No, not in that locality.

8885. It is chiefly in the more recently erected houses that you find cellar dwellings?—Yes; we have not many cellar dwellings in Gateshead.

8886. In the newer parts of the town you have some though, have you not?—In the newer parts of the town, Victoria Street for instance, there are cellars.

8887. Leaving the river-ward slope of the borough, and proceeding to the courts and entries, on either side of the High Street running to the south, have you also many other courts, such as Leonard's Court, Lister's Buildings, and so on, in which the same sanitary defect of houses built back to back in very narrow thoroughfares is an habitual feature?—Yes, it is.

8888. So that the same obvious difficulty of ventilation, arising from the nature of the house construction, may be said to prevail pretty generally over very large districts of the borough?—Yes.

8889. Not merely along the river side, but also along the High Street?—Yes; both on the eastern and western parts.

8890. We should not be exaggerating the facts, if we were to say that a very large proportion of the houses in all the districts occupied by the poorer classes were so constructed as to be almost incapable of proper ventilation?—Yes, that applies to the older parts of the town; in the more recently constructed houses, I believe there has been a considerable improvement in that respect.

8891. But with regard to the great mass of those now in existence, that is the case?—That is the case.

8892. The passages or entries are exceedingly narrow, so that the fronts of the houses are very close together?—Yes.

8893. The backs actually adjoin?—They actually adjoin often, and where they are not actually abutting against each other the space between is very small.

8894. And frequently those passages or entries are entirely built round, so that the court itself becomes almost a well?—A blind court, very narrow.

8895. With merely a covered passage at one end or the other to go in and out by?—Yes; that applies to a great portion of the town.

8896. So that in many cases you have what literally may be called wells, surrounded on all four sides by buildings, with probably but one, or at most two, low covered passages under those buildings, for the least breath of air to get in or out at?—Yes; that applies to a great part of the town where the working classes live. Perhaps I may now submit to you this table, (*handing in the same*) which I have prepared with a view to this investigation. All these groups together comprise the greatest part of Gateshead.

The following is the Table alluded to.

A Tabular View showing the Sanitary State of Portions of Gateshead in 1853.

No.	Groups of Streets and Courts where Deaths from Cholera occurred during the recent epidemic.	Number of Deaths therein at that time from Cholera and Diarrhœa.	Approximate Level above High Water, in Feet.	Number of Houses.	Number of Tenements.	Estimated Population.	Sewerage.	Streets Paved or Me Adam.	Scavenged by Board.	Total number of Privies existing therein.		How many of these Privies are drained into the Sewers.		How many of the Houses are separately supplied with Water by the Whittle Dean Water Company.	How many Houses by Stand Pipes of the same Company.	How many from other sources.	How many Dust-bins or Middens therein.			What Ventilation exists therein.		Cholera Mortality per 1,000 of the Population.	Remarks.
										For Common Use.	For Single Houses.	With Water Supply.	Without Water Supply.				For Common use.	For Private use.		Front.	Back.		
																		In-doors.	Out of doors.				
1	South side of Hillgate and Church Walk	39	20 to 75	71	263	1,110	None	Scarcely any	Yes	3	13	None	None	23	48 houses by 7 stand pipes.	None	2	3	9	Scarcely any	Scarcely any	35·1 or 1 in 28·5	One house in this group divided into tenements contains a population of 53.
2	The "Island," Bottle Bank	6	50 to 85	25	80	275	Imperfect	Paved	Yes	–	5	2	1	10	13 houses by 2 stand pipes.	None	2	2	2	Good	Scarcely any	21·8 or 1 in 45·8	
3	North side of Pipewellgate	5	15 to 20	26	39	205	None	Scarcely any	A part	2	11	1	None	9	15 houses in this group have no water supply except from the stand pipes on the south side of Pipewellgate.	None	None	None	None	Scarcely any	Scarcely any	24·4 or 1 in 41	Some of the people in this group make use of the water from the River Tyne for washing clothes, &c. The ashes are taken away every morning by the scavenger's cart.
4	South side of Pipewellgate and the Banks	40	20 to 80	131	282	1,315	None	None	No	4	12	2	None	11	120 houses by 18 stand pipes	None	20	–	3	Scarcely any	Scarcely any	29·6 or 1 in 33·7	
5	Barn Close	31	120 to 140	159	473	1,506	Very imperfect rubble drains	Scarcely any	No	–	154	2	3	143	None	None	–	10	148	Good	Pretty good	20·6 or 1 in 48·5	In this group in several instances 2 houses are supplied by one pipe in a yard common to both.
6	Oakwellgate Chare to Park Street	41	120 to 147	120	245	1,090	None	None	No	11	35	1	None	35	85 houses by stand pipes	None	16	–	40	Good	Not good	37·6 or 1 in 26·6	
7	Victoria Street	15	130	33	126	488	Imperfect rubble drains	None	No	–	26	–	–	27	None	3	1	–	27	Good	Pretty good	30·7 or 1 in 32·5	
8	Leonard's Court	15	150	14	78	293	None	None	No	5	–	None	None	None	The whole court by one stand pipe	None	6	None	None	Good	Pretty good	51·2 or 1 in 19·5	
9	New Gateshead	14	100	45	110	547	Very good	None	No	–	45	26	–	45	None	None	–	–	45	Good	Pretty good	23·5 or 1 in 42·5	

1. Bounded on the north by Hillgate; west, Church Street; south, Cannon Street; east, a lane leading from Oakwellgate to the Coal Staith in Hillgate, comprising the Church Walk.
2. The clump of houses lying between Bottle Bank and Church Street, known as "The Island."
3. Bounded on the north by the river; east, Bridge Street; south, Pipewellgate; west, New Chatham.
4. Ditto ditto Pipewellgate; west, by the stairs west of Wardman's houses; south, Half-Moon Lane; east, the lane leading from Half-Moon Lane to Pipewellgate.
5. Ditto ditto Half-Moon Lane; west, Victoria Street; south, Hexham Road; east, West Street, comprising Brunswick Terrace, Melbourne Street, Grosvenor Street, and the east side of Victoria Street.
6. Ditto ditto Oakwellgate Chare and Easton Street; west, High Street; south, Park Street; east, East Street.

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8897. I see you reckon Pipewellgate as containing only about 1,500 inhabitants; the north side about 200; the south side about 1,300?—Yes; these numbers have been taken from actual examination. The whole of this information has been taken within the last month.

8898. Then we may suppose the population of Pipewellgate to have decreased a good deal since the time when Mr. Rawlinson made his inquiry and report.

(*Mr. Clephan.*) It must have diminished since 1851, if Mr. Hall be correct.

(*Mr. Hall.*) If you will examine the reference at the bottom you will see that it is bounded on the west by the stairs west of Wardman's houses, on the south by Half-Moon Lane, and on the east by the lane leading from Half-Moon Lane to Pipewellgate.

8899. (*Mr. Bateman.*) It includes the block within those boundaries?—Yes; that group. The north side of Pipewellgate means the north side of the street to the river, the population of which is 205.

(*Mr. Clephan.*) There were 282 there in 1851.

8900. (*Chairman to Mr. Hall.*) You do not include in these districts the utmost extent popularly talked of as Pipewellgate; you merely take the main portion of it, so that the whole population of Pipewellgate may be greater, no doubt?—Yes; further away to the west there is the district of New Chatham, which generally goes under the name of Pipewellgate, which is not included in this.

8901. Do you think we should be over-shooting the mark if we assumed the population of the whole of Pipewellgate to be 2,000?—I cannot state exactly as to the part further west. I should think it would scarcely reach that.

8902. You think it would rather be under 2,000 than over?—I think so.

8903. With reference then to sewers and drains, are you acquainted with the report of Mr. Rawlinson?—Yes.

8904. You remember the statistics there given by Mr. Kell and Mr. Dobson?—Yes.

8905. Do you know of any inaccuracy in them?—No, I do not; they are correct, I believe, so far as I am aware.

8906. That prior to 1842 there was only one built common sewer; that in 1842 another of 100 yards in length was made; that subsequently another open kennel from Oakwellgate to Church Street was deepened and covered in by the Town Council; and that in 1849 a main sewer was constructed in High Street, Church Street and the Bottlebank; that is the statement here?—Yes.

8907. Did you find any greater amount of sewers in existence when you came into office here?—No; I think that is all. There are various parts of the town where drains are laid, which are not discharging drains and do not run into any main sewer, so that they do not properly come under the denomination of sewers or drains.

8908. They are common surface gutters?—Yes; many of them flowing out into the open streets.

8909. They take the water from the surface at one point of the slope and carry it for a certain distance sometimes under ground, and then at a lower point re-deliver it to the surface where it stagnates or runs off, as the case may be?—Exactly.

8910. It is also stated in this report that not only was there a very small extent of sewers, but that even where sewers existed, only a small proportion of the proprietors on either side, who might have used them, had done so, for the purpose of house drainage?—Yes, very frequently that is the case.

8911. When you came into office it would have been a pretty correct statement of the facts to say that there existed only a few hundred yards of sewers, and only a very, very few branch or house drains into those sewers?—Yes. I may add that a considerable number of branch drains have been constructed in High Street, Church Street, the Bottlebank, and in other streets since I came into office.

8912. Can you give us exactly the number of yards of sewers which you found when you came into office?—The whole length of sewers constructed up to this time are ninety-nine chains and fifty links, or a mile and a quarter.

8913. How much of that was in existence when you came into office?—I cannot state that exactly.

8914. Was it half that length?—More than that. Very little has been done since I came into office, excepting in Grahamsley Street; indeed, excepting Grahamsley Street, all the rest may be said to have been done before.

8915. Would you say that there was a mile of sewer in existence when you came into office?—Yes; I should think so, as nearly as possible.

8916. But of house drainage into that mile of sewers there was little?—Very little; I can give you an account of it, as it is at the present time. The number of houses on the east side of the main sewer in High Street, within drainage limits, is 102, and on the west side 133; making a total of 235. The number of house drains in connexion with the sewer is fifty on the west side and twenty-five on the east side.

8917. Altogether seventy-five?—Yes; and eleven in the Bottlebank.

8918. Altogether eighty-six houses drained out of 235, or rather more than one in three?—Yes.

8919. Have you any notion how many houses in the town drain into the other sewers?—No; the sewerage of the town in such streets as Charles Street, Melbourne Street, Ellison Street, Grosvenor Street and Victoria Street, is very imperfect; indeed, it scarcely deserves the name of sewerage.

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8920. What is the length of the main sewer which you speak of?—Fifty-five chains, and the Bottlebank is five more.

8921. About 1,200 yards then, and upwards?—1,320 yards; with the Bottlebank it is sixty chains altogether.

8922. Then of the mile and a quarter of sewers which are in existence in the town, three quarters of a mile refer to the one main sewer in High Street?—Yes.

8923. Is this in good condition?—In good condition.

8924. Having eighty-six out of the 235 houses adjoining drained into it?—Yes.

8925. Then, as I understand you, with the exception of the main sewer up the High Street and the branch sewer from Grahamsley Street into that main sewer, the rest of the sewerage in the town is so imperfect in your judgment as hardly to deserve the name?—Exactly so.

8926. Do you think there are an additional fifty houses drained into those other sewers; I mean fœcal drainage always?—No.

8927. When you say that these eighty-six houses are drained, you mean drained for fœcal purposes, do not you?—No, merely that each house has a drain of one kind or other in connexion with the main sewer.

8928. (*Mr. Bateman.*) From the yard or from the premises?—From the yard, for taking off the surface water. They have not always a water-closet in connexion with it.

8929. (*Chairman to Mr. Main.*) You gave us sixty-four as the number of houses having water-closets supplied by you?—Yes.

8930. (*To Mr. Hall.*) Therefore we know that there must be sixty-four houses having fœcal drainage in Gateshead?—I should think that that is about the number.

8931. Besides that there will be some houses, no doubt, having water-closets not supplied by the Whittle Dean Company?—I think not; very few, at all events, if any.

8932. Supposing that to Mr. Main's computation of sixty-four houses, having water-closets supplied by the Whittle Dean Company, we add twenty-five per cent., or sixteen more, for houses having water-closets supplied by rain water or well water cisterns, do you think that would be a fair computation?—Yes, quite fair.

8933. Then if we assume that there are eighty houses in the whole borough having fœcal drainage, we shall be making a fair assumption?—Yes; I think so.

8934. Then if to your eighty-six which discharge themselves into the main sewer, we take fifty more for houses which may discharge themselves into the other sewers; and if we say that there are 130 or 140 houses in the borough having drainage of one kind or another into the sewers, superficial or fœcal, will that be a full allowance?—I think so, quite.

8935. Say 150 having any sort or kind of drainage, that would be a fair statement?—I think it is beyond the mark.

8936. I believe there are some streets, such as William Street, and Pollock Street, and Russell Terrace, which have been built within the last ten years or so, which are without any kind or sort of drainage, surface or fœcal, or of any description whatsoever?—Yes.

8937. With regard to domestic conveniences, in the way of privies and middens, we have had evidence already, both documentary and oral, as to the sad deficiency of those things; is that within your knowledge?—It is.

8938. Generally speaking, may we say of the districts occupied by the poorer population of this borough that there is a very general and sometimes extreme destitution in that respect?—Yes.

8939. And that where they do exist, as some of them do, they frequently exist in a very filthy and pestilential state?—Yes.

8940. With regard to the upper parts of the town occupied by the wealthier and more respectable inhabitants, the sewerage is so deficient that there is no possibility of having proper fœcal drainage?—Yes.

8941. Gentlemen cannot put up water-closets if they please, because there are no sewers within reach of them?—Yes; such is the case.

8942. With regard to paving, you have stated in your table that at all events very large portions of the town are not paved at all?—Yes.

8943. The description given to Mr. Rawlinson in 1849 by these six medical gentlemen, viz., that "several of our streets, courts, and entries are not only undrained, but unpaved "and uncleansed, and without any side channels to carry off the liquid matters, so that "in wet weather they become almost impassable from ruts and filth," is still true of a very large portion of the town, is it not?—It is.

8944. From this destitution in the way of privies and middens, and from this want of paving, it results, does it not, that the inhabitants dispose of the refuse and the excrement and so on, by pitching it all into the thoroughfares of the courts and entries, where it lies and is trampled in until the surface habitually is covered with filth?—Yes; that is the case.

8945. That is as true now as it was in the year 1849?—Yes, more or less.

8946. With regard to the scavenage, it has been stated that the main thoroughfare is scavenged and cleansed, but that the moment you diverge from it right or left, and get into any of the courts and entries inhabited by the poorer population, the scavenage is next to nothing?—It has been very much improved of late, though, owing to the state of the

streets, you cannot make such an improvement as you might otherwise wish to do, but still great improvement has been effected by the Board of Health in the scavenage.

8948. The state of the paving is such in these parts that no practicable amount of scavenage will keep them clean?—Yes

8949. The paving is so full of holes and ruts and interstices in which filth remains that it would require a scrubbing-brush almost to get it out?—Yes.

8950. It is also a fact, in many parts of the borough, especially in the entries in the poorer districts, that you may not merely occasionally, but habitually, see considerable accumulations of very offensive matter?—Yes.

8951. That still prevails to a considerable extent habitually?—To a considerable extent; though a great improvement, I must admit, has been made in that respect; and of late the Board of Health have taken measures to carry that out still more fully.

8952. How recently?—They are now making arrangements to take into their own hands the responsibility of cleansing the whole town, instead of leaving it to individual occupiers and owners of property; indeed every description of property within the paved footway district will be taken into their hands for the purposes of scavenage.

8953. What was the state of things in August 1853?—Very bad; it was left to the efforts of individual occupiers of houses; and the consequence was that in a great many places the town was in a very filthy state.

8954. The sewerage and paving was much the same then as now?—Yes.

8955. And the scavenage very much worse?—Yes.

8956. Therefore what we have seen in our inspection of the town is at all events an improvement upon what we might have seen, if we had been here in August 1853?—Yes.

8957. I suppose you are not taken very much into the houses, are you?—No, my duties do not lead me much into the houses.

8958. You have had opportunity, however, to observe that the walls of the houses were occasionally very damp?—Yes.

8959. Have you reason to believe that they were damp with worse than pure water? Yes, damp with water laden more or less with infiltrations from sewage matter.

8960. A good many of the houses of the borough, especially in the poorer districts, such as Pipewellgate, and Hillgate, and Leonard's Court perhaps, and so on, are old and dilapidated and not weather tight, I fancy?—Hillgate and Pipewellgate more particularly; Leonard's Court is not so old; it is in a dilapidated state, however, from the description of tenants which inhabit it, chiefly Irish.

8961. But, as regards the houses themselves, the brickwork is solid, and one might say wholesome, as compared with the brickwork of houses, the walls of which have been damp for 50 or 100 years together?—Yes.

8962. With regard to Pipewellgate and Hillgate, however, and the district on the steep slope down to the river generally, you say that a large proportion of the houses there inhabited by the poorer classes is dilapidated, with rotten walls and roofs, not weather tight, and the houses physically in a very bad condition?—Yes, I do not think there is a house in Pipewellgate or Hillgate or in the Island fit for a person to live in. That is my opinion; that they are not fit for human habitation, though the Island is not quite so bad as Pipewellgate, and Hillgate. I may add that it is in contemplation by the Board of Health, and it is now under their consideration, to remove the whole of Hillgate, with the view of replacing it by a quay, and no doubt also with the view of building a better description of houses there.

8963. Do you also entertain the opinion, not only that these houses are not fit for human habitation, but that they scarcely can be rendered fit for human habitation, without first pulling them all down?—I do not think it is possible to do so, without pulling the whole of them down.

8964. That is to say the wall work, the actual skeleton of the house, is rotten?—Yes, the structural arrangement from the bottom to the very top is radically wrong in itself.

8965. I believe that, as the Town Council is also the Board of Health in this town, you, as town surveyor, are also surveyor to the Local Board of Health; and I believe you are also inspector of nuisances to that board, are you not?—Yes.

8966. Adverting to the powers vested in that body by their Act, and referring to the 41st section, I believe you have not yet prepared or procured a map exhibiting a complete system of the sewerage here?—No.

8967. I understood the chairman of the Board of Guardians, who is also a member of the Board of Heath, to say that there were so many works immediately and obviously wanting, that you had had plenty to occupy your whole time as yet, without going into any question of maps; is that the fact?—I think the first consideration should have been the production of a map for the carrying out of drainage works.

8968. You think a map ought to have been made or obtained?—Yes; and the cause of my being engaged in different works, scattered over various parts of the town, is from the want of a proper map.

8969. And you regret that a map was not made?—Very much indeed; it is the foundation of the construction of all works.

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8970. Do you remember whether that subject was ever brought before the attention of the Local Board of Health?—Yes.

8971. Can you remember at what time?—Yes, I can refer to it; it is in a report which I laid before the board—the first report, indeed, which I made to the Local Board of Health—dated the 25th of November 1851. "Agreeably to one of the minutes of your last "meeting, I have considered the best method of draining the district lying south of "Trinity Chapel, and have no doubt that, by a secondary sewer, the sewage may be "brought into the main sewer, or be connected therewith by proper branches along the "new streets and Nun's Lane. In the absence, however, of engineering plans and "sections, I am at present not in possession of sufficient information to give a decided "opinion. The above instance is only one of many which will be constantly occurring, "and which shows the necessity for complete plans and levels of the borough as recom-"mended by the General Board, before attempting to devise a complete system of sewerage. "To this subject I would therefore respectfully request your earliest attention."

8972. What was done in consequence of that suggestion?—Nothing, I believe.

(*Mr. Alderman Robson.*) I believe there was a division upon it.

8973. (*To Mr. Robson.*) Are you a member of the Local Board?—Yes.

8974. And your impression is, that in consequence of that report by Mr. Town Surveyor, there was a discussion in the Local Board, and actually a division on the subject of the propriety of causing such a map to be made?—Yes, I believe there was.

8975. And the decision was adverse to the making of a map?—Yes, I believe a large majority was adverse to it.

8976. (*To Mr. Hall.*) Have you ever, on any subsequent occasion, reverted to the subject in any of your reports?—Yes, on March the 5th, 1852, again I say:—"I am "anxious to draw your attention to a subject of the very first importance to the interests "and sanitary welfare of the borough, and to which I alluded in the first report which I "had the honour to lay before you, namely, 'the absolute necessity for an immediate and "'complete survey of at least such parts of the borough as are already, or as are likely "'to be, occupied by buildings.'" The report goes at considerable length to the same effect.

8977. That is the general suggestion which you made, and which you proceeded to illustrate in detail?—Yes.

8978. Do you know whether anything took place in consequence of that?—There was a portion of the borough, of which I was instructed to make a survey, and in which I was allowed an assistant to assist me, namely, the eastern part of the borough, east of High Street; the survey has been completed.

8979. Does that include Leonard's Court and Lister's Buildings?—Yes, the whole of this area.

8980. In fact, it includes the whole inhabited part east of High Street?—Yes, that part is completed, and estimates have been laid before the board; and at the meeting of the board yesterday, the plans which I recommended the board to adopt were not approved of.

8981. What was the result of the meeting yesterday?—They did not approve of the plan which I recommended them to adopt; but they were of opinion that the outlet for the sewerage of the district ought to be in a different part from that which I recommended for it; that was the principal cause, I believe, of its not being adopted. I was instructed to lay down a scheme for the drainage of that district with a view of carrying it through the most populous parts thereof. I laid before the Board that plan, and it will be forwarded to the General Board, I believe, in a day or two.

8982. Then, with the exception of the question of the outfall, they adopted your plan, and sent it up to the Board of Health for approval; but they recommended a modification of your plan in respect of the point of outfall; is that so?—Yes. (*The witness produced a plan.*) That is the High Street, and the line of sewerage which I proposed was this in red.

8983. (*Mr. Bateman.*) Your outlet being at A?—Yes; and that which the Board has adopted is in green.

8984. (*Chairman.*) This will not be a desirable angle, will it?—No.

8985. I suppose if that plan was ultimately adopted they would modify and improve it in that point in respect of making it a less acute angle?—There is a clause in the Public Health Act, that no houses are allowed to be built upon a sewer, and of course it is very desirable not to lay sewers below houses if you can avoid it. I may explain that this plan shows two drainage areas.

8986. Separated by a ridge?—Yes; and the main sewer which is already formed will drain this area coloured blue. This which I propose will drain the whole coloured red.

8987. Then what I understand you to say is, that the plan which you proposed not only follows the natural feature of the country, but would have prepared and made ready for the drainage of a much larger area of the borough whenever the buildings shall reach so far?—Exactly so.

8988. And that the plan which the council seem to have proposed would carry the sewage out of one natural drainage area into another which is naturally separated from it, and will not ultimately accommodate more than a small part of the district which you contemplate as likely to be built upon?—Yes.

8989. (*Mr. Clephan.*) What is the motive?—I believe it is with a view to make these houses abutting upon Oakwellgate contribute to the expense of this main sewer.

8990. To ease the expense upon the other part of the town?—Yes; I proposed to drain Oakwellgate by a smaller sewer. In fact, a fifteen-inch pipe is quite sufficient to drain Oakwellgate, considering its natural position.

8991. (*Chairman.*) What do you propose as the size of the other?—A brick sewer three feet by two. I have plans of them if you would like to see them.

8992. I see you have a number of reports there?—Yes; these are my reports which I have laid before the board from time to time.

8993. Would you be good enough to put them in before us?—Yes.

8994. Is there any other point upon which you wish to speak?—With regard to slaughter-houses, I think there is nothing at the present time which is such a great nuisance to the town as the existing slaughter-houses; and I believe this is more owing to the want of proper sewerage than to anything else.

8995. On the 3d of March 1852, the Local Board issued and got approved a variety of byelaws with reference to lodging-houses, to street and surface cleansing, to slaughter-houses, and so on; and we have had evidence to this effect, that the lodging-house byelaws and the slaughter-house byelaws have been carried out pretty fairly?—Yes.

8996. That the byelaw as to occupiers cleansing the interior of their premises is literally a dead letter?—Yes.

8997. Do you know of any other points than that one in which the byelaws made by the Local Board have not been enforced at all?—I cannot recall at present anything which I can add with regard to that.

8998. You think that generally the byelaws and regulations issued by the Local Board have been carried out, excepting in that one point of compelling occupiers to keep the interior of their premises clean?—Yes; with regard to carting away refuse, the bye-law provides, that that is to be done from a certain time at night to a certain time in the morning; from ten o'clock at night till eight o'clock in the morning in summer, and nine o'clock in the winter. It has been a matter of great difficulty to the board to enforce that one; indeed the cartage of refuse through the town takes place at all times of the day nearly. The byelaw has not been properly complied with.

8999. But you think that the Local Board of Health have generally used reasonable diligence in enforcing their other byelaws and regulations, saving and excepting that one important one with regard to the interior of premises?—Yes. The late measures which they have taken, both with regard to scavenage and the removal of refuse throughout the whole of the town, is a proof of it.

9000. Up to August 1853 had they done that?—No, I think not; I cannot say that.

9001. Between the issuing of these orders in March 1852, and the outbreak of cholera in August 1853, you could not say that these byelaws and regulations had been adequately enforced?—I could not say that they were; but there were many surrounding difficulties connected with the enforcing of them.

9002. The lodging-house byelaws have been well enforced?—Yes; but I cannot answer so well as to that, the superintendent of police will do so; I believe they have been, very well.

9003. With reference to street cleansing what has been done?—There has been considerable improvement in street cleansing.

9004. Between March 1852 and August 1853 had a good deal been done?—Yes, a good deal; I think that the scavenage over that area to which it applied was very well done.

9005. Then, would you say that the area within which these regulations applied, and these improvements were made, had been too much restricted?—Yes.

9006. That they might have carried their byelaws into operation over a wider area, to the very great advantage of the town?—Exactly.

9007. Also with reference to the removal of refuse and accumulations in the district, to which they limited themselves, they carried them out, not fully—not to the letter—but to a considerable extent?—Yes.

9008. (*Mr. Town Clerk.*) So far as they could do under the system which was then adopted?—Yes.

9009. (*Chairman.*) With reference to certain points, such as the emptying of privies, soil-pits, and so on, we have already had evidence that that was not done at all?—Yes.

9010. That it seemed hopeless, that the amount of the work to be done and the destitution of the town in these respects was so great, that it was almost hopeless to begin it?—Yes.

9011. With reference to the slaughter-houses, have those byelaws been carried out?—Yes, they have been carried out, as far as, in the existing state or rather absence of sewers, you could expect; and I believe with good results in many respects.

9012. (*Mr. Town Clerk.*) You brought several parties up, and they were punished?—Yes.

9013. (*Chairman.*) Generally, you would say that the board, though they have neglected some of their statutable powers, have enforced most of their own regulations?—Yes.

9014. We must ask you the general question as to the water?—It was very bad.

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9015. Every one admits that it was very bad to the eye, very muddy, but did you notice anything worse than that, any bad smell or taste?—It has often been a point of great dispute with people, to whom I have spoken on the subject, whether it had a smell or not. I must say myself, that I think there was a smell; but it would by no means come under the denomination of a stink. It had a slight smell.

9016. (*Mr Bateman.*) At what season of the year?—A little before the cholera broke out; about August, July and August.

9017. (*Chairman.*) With reference to the nature of this smell. Water charged with mud might have a smell. Was the smell to which you alluded anything worse than that, an earthy smell?—I could not at this time give a description of the smell.

9018. Was it a smell which you would have attributed to the presence of mere earthy matter, or would you have been inclined to infer that it arose from any more objectionable matter?—I could not give an answer to that.

9019. Did the water ever have a taste as well as a smell; I mean an offensive taste?—I cannot speak with regard to that; it was muddy, and no doubt it was a water that you would not like.

9020. Did you ever notice anything decidedly objectionable in the water except upon the occasion of last summer?—No. I must state that the supply of water has been pretty good, though it is hard. The washerwomen cannot make use of it without hurting their hands very much, and they injure the linen from the quantity of soda they use to soften it.

9021. (*Mr. Town Clerk.*) Are you aware of any place in this district where an adequate supply of soft water can be had?—Not of any one place producing an adequate supply; but I believe that water of a softer quality than that supplied by the Whittle Dean Company may be got by uniting the produce of different places.

9022 What do you say as to the quantity?—I believe sufficient to supply both Newcastle and Gateshead.

9023. (*Mr. Bateman.*) In which direction?—I believe that a part may be got from the vale of the Team; there is a very considerable quantity of soft water there.

9024. It is liable to be injured by the coal workings?—Yes, a portion of it might be, to some extent.

9025. Therefore you could not depend upon the supply?—Just so. I must admit that the Whittle Dean Company until that time gave a large and bountiful supply of water; they were very liberal.

9026. (*Chairman.*) They made a great improvement upon what you had before?—Great; and I think they are deserving of very great credit for what has been done; but I think more might have been done still.

9027. (*Mr. Bateman.*) You think that a supply of soft water is a matter of considerable importance?—Of immense importance to a town.

9028. And that the water company in seeking for additional supplies would show its wisdom by seeking those which are softest instead of those which are hardest?—Yes; and I think one particular fault is that they have no filter-bed. I think getting surface water as they do, no water should be supplied to a town without being filtered. When I visited their reservoirs, there had certainly been no rain for a very considerable time previous until within three days of the time, and the water then filling the reservoirs was such (I speak from a perfect recollection of it) that I would not be inclined to bathe in it, let alone drinking that water. Now if the reservoirs had had proper filter-beds adjoining them to filter that water I think it would have added very much to the improvement of the water supply.

9029. They are going to give you a filter-bed?—Yes; I am very glad to hear it.

9030. With reference to the public baths and washhouses, which were suggested a great many years ago by the Newcastle and Gateshead Sanitary Association. I believe you are just now erecting them?—Yes.

9031. But up to August 1853 nothing had been done in the five years since that recommendation was made?—In that respect I think the Corporation deserve very great praise indeed for what they have done. The erection is well forward, and it will be a very complete establishment when carried out.

9032. When did they first authorise proceedings with a view to their construction; was it previous or subsequent to the outbreak of cholera?—Previous.

9033. About what time?—More than 12 months ago; about 18 months ago, I should think.

9034. At the close of 1852 they began to take measures?—Yes.

(*Mr. Clephan.*) It has been before the Council and referred to committees repeatedly.

(*Mr. Alderman Robson.*) Two years since.

(*Mr. Town Clerk.*) I perceive that, onthe 20th October 1850, there was a resolution to this effect: "That the subject of the establishment of public baths and washhouses in the "borough be again referred to the Town Improvement Committee, with instructions to "report upon the subject generally, and on the order of the Council of the 3d February "1848."

9035. (*Chairman to Mr. Town Clerk.*) That would have followed immediately upon the failure of water in the autumn of 1850, when they pumped from the Tyne?—Yes; but

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it refers to a previous order of the Council of 3d February 1848. There has been considerable difficulty in getting an eligible site.

9036. (*To Mr. Hall.*) Admitting two or three sanitary improvements in the main thoroughfares in respect of sewering, scavenging, and paving, has the sanitary state of the town generally, and especially of the worst parts of the town, which most require improvement, been improved at all within your experience?—My experience extends to two years and three months. It has been considerably improved during that time, excepting in Pipewellgate and Hillgate, where it cannot be done except by pulling them down; there is no possibility of any improvement without that.

9037. I suppose, following the course of the High Street right and left, there are some places which it would also be very difficult to improve?—There is great difficulty in improving a great part of the eastern district, but still it can be improved very materially; you will observe that there are no main leading streets from East Street to High Street. There is a great want of them. That can be done, and will be no doubt done, for the means not only of traffic, but of sanitary improvement, and it will be a great improvement when carried out.

9038. The condition then of the eastern district for which you have been preparing sewerage plans is not hopeless?—No; and with the introduction of water-closets, I have no doubt that it will receive great improvement.

Peter Haggie, Esq.

PETER HAGGIE, Esq., examined.

9039. (*Chairman.*) Are you a member of the Town Council of Gateshead?—Yes.

9040. And a member of the Local Board of Health also?—Yes.

9041. In the 40th section of the Public Health Act, power is given to the Local Board of Health to appoint a medical officer who shall be competently informed, and whose business it shall be to look to the sanitary state of the town, so that the Local Board of Health may not have to wait for reports from their inspector of nuisances upon matters which may have been brought to his knowledge by casual complaints, but shall have a person whose actual business it shall be to ascertain the sanitary state of the town, and to render it satisfactory?—Yes.

9042. Has anything ever been done under the power of that 40th section?—Not that I am aware of.

9043. You do not know of any suggestion to that effect?—None that ever I heard.

9044. With reference to the 41st section, which empowers the Board to cause a map to be made, you have heard Mr. Town Surveyor's evidence?—Yes.

9045. Have you anything to add to that?—I have a great objection to centralisation myself, but still I see the necessity of having some external power to force us to move; otherwise I am afraid we shall be many years before we get the town all sewered. I have several times brought before the Council the propriety of getting a proper map for the whole town, but I have failed hitherto in getting a majority to carry out this idea.

9046. Have any other members of the Local Board of Health taken similar steps with reference to the procuring of a map?—I do not know that any other gentleman has made any direct proposal. I believe I have generally been the mouth-piece, but I have been supported by several gentlemen, who are as anxious as I am myself to have it done.

9047. Would you like to state your view of the circumstances which have led to the majority of the Local Board opposing that suggestion for a map?—In the first place I think there is a little jealousy in the Council with respect to the practical movements of the surveyor himself. They have never been accustomed to have engineering matters brought before them; and where there are new things, they are not always prepared to adopt the system that the engineer proposes. In this case, for instance, he has taken a great deal of pains to go into the matter, and as an engineer he ought to know well about it, but still his proposal has been thrown overboard, and there has been a counter-proposition from persons who are not engineers. Now it strikes me that if we are to go on in that way much longer, the thing will become a perfect farce.

9048. What are the circumstances which in your judgment have led to that counter-proposition?—It is a matter of expense; that is the excuse offered; it was so yesterday. That it is expensive to do things thoroughly and rapidly, and that the thing will be more economically done if postponed and done piecemeal.

9049. (*Mr. Clephan.*) You recommended that Hillgate and Pipewellgate should be sewered at once?—I did propose it, but the engineer put his veto upon that, because of the difficulty which there would be of carrying on so many works at once.

9050. But you would take the necessary preliminary steps to have the whole town sewered by one uniform system as quickly as may be?—Exactly; that is my meaning. I have taken a great deal of trouble in going through these places, and have seen the necessity of it.

9051. (*Chairman.*) Then the question of expense has been the main item among those which have led to the rejection of Mr. Town Surveyor's plan, and of your plan for making a complete map of the borough with a view to preparing for some uniform and complete system of drainage throughout it?—Precisely so; they say that we have nothing in our exchequer, and that it will be a long and expensive work.

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9052. (*Mr. Bateman.*) And the party who would willingly carry out all the improvements which appear to be necessary, are not strong enough to contend with the so-called economical ratepayers?—Yes; all ratepayers set their face against being called upon.

9053. And you think that you must look to some extraneous support to enable you to get the better of them?—I am afraid that we are driven to that conclusion. I have been very reluctant to own it, but it seems to be so.

9054. (*Chairman.*) With reference to the powers given you by the Public Health Act sections 43 to 48, with regard to sewers, you are empowered to make, enlarge, alter, and improve sewers. Have any proposals been made for putting those powers in operation that you know of?—Not that I am aware of.

9055. From Mr. Town Surveyor's evidence it should appear that there is a large proportion of the existing sewers, at least half a mile out of one and a quarter miles, which stands very much in need of improvement?—Yes, we are very much in need of it.

9056. There has been no discussion or rejection of any plan to that effect that you know of?—Not that I am aware of. I do not remember that it has been laid before us.

9057. With regard to the 46th section, which empowers the Board of Health to have the sewers in existence constructed, covered, and kept so as not to be a nuisance or injurious to health, I am afraid that power has not been sufficiently put in force?—No.

9058. According to Mr. Town Surveyor's evidence, there is a considerable portion of them which is more likely to be a nuisance than otherwise?—Yes, they are actually dangerous.

9059. You are not aware that there has been any discussion upon that point in the Local Board?—Not upon that point.

9060. With reference to the building of houses, it is enacted that in all cases where houses are built or rebuilt, the Local Board shall have power, in one way or another, to enforce the building of those houses with proper drains and at proper levels, when within 100 feet of existing sewers, and so on. Are you aware whether anything has been done under that power?—Yes, there has. Every plan which has been laid before the council has been placed before the surveyor for his decision, and there has been strict attention paid to the Act in that respect.

(*Mr. Town Surveyor.*) With respect to the houses which have received the sanction of the Local Board, the plans in many cases have been sanctioned without drains, owing to no main sewer being formed.

9061. (*To Mr. Town Surveyor.*) There have been many new houses, the plans for which the Local Board of Health have been obliged to sanction, despite their not possessing proper house drains, owing to there being no sewers within 100 feet of them?—Exactly so.

(*Mr. Haggie.*) Still there have been arrangements made for subsequent drainage.

9062. (*To Mr. Haggie.*) With reference to the power given to the Local Board to compel the providing of all newly-erected houses with sufficient water-closets, privies, ashpits, and so on, has that power been enforced?—So far as the privies and ashpits are concerned it has; but it has not been made a *sine qua non* that a water-closet should take the place of a privy.

9063. It may not have been possible always?—For want of sewerage, I presume.

9064. The 52d section gives a peculiar power to the Board, namely, to compel the owners of factories to provide, within a specified time, a sufficient number of water-closets or privies for each sex. I am afraid that that power has not been put in force at all?—I have never heard of it.

9065. Are you acquainted with any of the factories in this town?—I am.

9066. Can you say whether any of them are properly supplied in that respect now?—Some are. I have never taken the pains to go through the whole, but I have seen some of them, and those are provided with the necessary accommodation. Indeed, I think that the people who have those factories are generally pretty well alive to that themselves, and do not require to be pushed.

9067. With reference to the power given in the 53d section of compelling parties about to erect or re-erect houses to give the Local Board notice of their intention, together with an account of the levels, the situation and construction of privies and cesspools, and so on, has that power been made use of?—I think that it has generally come from the parties themselves.

9068. (*To Mr. Town Surveyor.*) Are you aware of any houses having been built or rebuilt since the constitution of the Local Board, without notice having been previously given to the Board with respect to these points?—There has been a case or two of their not having done so, but there have been measures taken to compel them to do so.

(*Mr. Haggie.*) That was in the early part.

(*Mr. Town Surveyor.*) There has been no case within the borough of late.

9069. (*Chairman to Mr. Haggie.*) As to the 54th section, empowering the Local Board to see that all privies, water-closets, ashpits, &c., shall be constructed so as not to be a nuisance, I am afraid that there has been nothing whatsoever done?—No, we are almost powerless in that respect. They are so very numerous that we find it difficult to cope with them. I am afraid the town surveyor would find a difficulty where to begin.

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9070. Has this subject ever been discussed before the Local Board?—It has been talked about, but never properly discussed; I remember two cases which the surveyor brought before us. In each of those cases they were called upon to provide proper accommodations, but those are solitary exceptions; the rest of the places remain *in statu quo.*

9071. (*To Mr. Town Surveyor.*) Have the Local Board proceeded to put this clause in force in all the cases in which you have reported it as desirable?—No, not in all cases.

9072. You have reported cases to them without their having done so?—Yes.

9073. What happened on those occasions; you sent in a report in writing to them at some meeting, I suppose?—Yes.

9074. What followed; was there any regular discussion upon it, or was it merely set aside?—There might a discussion take place, and it might be simply set aside. There have been a few cases, where the Local Board have exercised the power, and with good results; but there have been others which have been set aside. I do not know for what reason.

(*Mr. Haggie.*) I think principally for want of sewerage.

(*Mr Town Surveyor.*) Yes, that meets one in every direction, where any improvement isrequired.

9075. (*To Mr. Town Surveyor.*) With regard however to the emptying of an overflowing ashpit or privy?—Yes, but that is almost endless, one does not know where to begin.

(*Mr. Haggie.*) The power has just been put into the hands of the surveyor to look after these things himself; it was passed yesterday.

9076. (*To Mr. Haggie.*) I understand you to say, that yesterday you gave the town surveyor power to provide for the regular emptying of privies and ashpits?—Yes.

9077. But up to the outbreak of cholera in 1853 the power of this 54th section had, except perhaps in a few cases, not been exercised at all?—That is so.

9078. And what I understand Mr. Town Surveyor to say is, that the amount of work to be done under the section was so immense in all directions, that it seemed almost a hopeless task to begin with it until some general arrangements should have been made to prevent a recurrence of the evil?—It was so, I believe, at first; it appeared so to him and to everybody else.

(*Mr. Town Surveyor.*) I may state that I have often complaints made to me in regard to such nuisances.

9079. (*To Mr. Town Surveyor.*) By the tenants of tenemented property?—Yes, and by occupiers of many respectable houses; and I am unable to apply a remedy to them.

9080. You have been until yesterday?—Yes. I expect that when the Board take the responsibility of this into their own hands, and when the new system of scavenage is in proper working order, it will prove a great boon to the town.

9081. (*To Mr. Haggie.*) With regard to the 55th section, by which the Local Board are empowered to see to the cleansing of the surface of the streets, and to the removal of any rubbish that may be there, has anything been done?—There has been something done.

9082. I mean previously to the outbreak of cholera in 1853?—Previously to the outbreak of cholera very little had been done, I should say none at all.

9083. And the streets consequently were in a very bad and unscavenged condition, and accumulations of all kinds were lying about in every direction?—Yes.

9084. Had they done anything under the powers of the 56th section, enabling them to provide proper middens and ashpits?—No.

9085. That power has been practically neglected?—Practically neglected, and I believe is so still.

9086. Had anything been done under the power of the 57th section authorizing them to provide and maintain public conveniences?—No, in no single case.

9087. And yet the circumstances of the town were such as to call loudly for the exercise of that power?—Frightfully so.

9088. And the power was totally neglected?—Totally neglected and has been to this day.

9089. The 58th section gives them power to cause offensive drains, gutters or ditches to be drained, cleansed, covered and kept in a proper condition; little or nothing had been done under that, I presume, previously to August 1853?—I believe not. I never knew of anything excepting in solitary instances, which did not amount to much.

9090. (*To Mr. Town Surveyor.*) Have you ever had occasion to make a report upon any such matter as that, either as to the scavenage or as to the covering and keeping clean offensive ditches?—Yes, I have reported with regard to both points.

9091. Was anything ever done with reference to them?—Yes. In regard to the scavenage I recommended the Board to take the whole scavenage into their own hands.

9092. When did you recommend that?—About a month ago.

9093. Previously to the outbreak of cholera in 1853 had anything been done under either of those powers?—Yes; in regard to offensive drains I reported to the Board.

9094. Had they done anything to cause them to be put into a better condition?—Nothing was done of any importance.

9095. Did they comply with the spirit of your suggestions as to the enforcement of these powers of the 55th and 58th sections?—No, not to any extent.

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(*Mr. Clephan.* Will you ask, in reference to the powers of these sections, whether one of the places reported against did not exist in that very triangle in which the cholera broke out in Gateshead, and of which Victoria Street forms one side?

9096. (*Chairman to Mr. Town Surveyor.*) Did you ever make any report on the condition of that cowbyre?—Yes, I reported twice with regard to it.

9097. About when first?—About eighteen months ago. There was a complaint made to me about it, and I recommended the Board to cause the cowbyre to be removed entirely from that locality.

9098. As much as eighteen months ago; that would be at the close of 1852?—Yes.

9099. Was anything done under that first suggestion of yours?—I believe the resolution of the board was that, instead of its being removed, the owner should be called upon to see to its being cleansed every other day or so.

9100. Was that resolution, namely, the cleansing of it every second day, carried out?—It was to a certain extent; but it was almost impossible to keep one's eye continually upon the place, it being only one out of the hundred that are in the town; and accumulations took place again, and another complaint was made to me.

9101. About what time was the second complaint made to you?—About the time of the outbreak of cholera.

9102. Then in fact the proceedings adopted by the Town Council in respect of your remonstrance as to the state and the situation of this cowbyre, had not been such as to attain the object desired and to prevent the place being a nuisance?—No.

9103. (*Mr. Clephan.*) Did any of the occupiers memorialize the council?—Yes, I believe they did; and there have been repeated complaints made to me by the people living in Mulgrave Terrace and in the district about it.

9104. (*Chairman.*) That is one of the greatest nuisances in the place?—Yes, it is a very great nuisance; but there are so many that it is very difficult to tell which is worst.

9105. (*To Mr. Haggie.*) With reference to the power under the 59th section enabling you to cause nuisances in the way of swineries or pigsties, stagnant waters or soakage from and out of privies and cesspools, and so on, to be abated, has that power been put in operation?—From time to time. In the epidemic it was exercised, and on the cessation of that epidemic it relaxed again.

9106. In the eight months between the 1st of January and the 1st of September, 1853, had that power been put in force?—I should say not, nor until the end of September.

9107. (*To Mr. Town Surveyor.*) It was on this section that you were going to give us some information, I think?—Yes. I reported as follows:—"Under the Public Health Act "it is provided by clause 59 that the inspector of nuisances shall have power to give notice "for the removal of any nuisance to the person to whom the same belongs, or to the occupier "of the premises on which it exists; and if at the expiration of twenty-four hours after "such notice the same be not complied with, the manure, dung, &c., or matter referred "to, shall be vested in, and be sold by, the board, and the proceeds thereof carried to the "district fund account. It so happens in Gateshead that the expense of removal of such "refuse often exceeds the value of the refuse. I am, therefore, under the circumstances, "not aware of any provision in the Public Health Act for the recovery of expenses "attendant upon such removal." This has been communicated to the General Board with the view of some amendment of that clause; but it was stated by the General Board that this alluded to large accumulations of manure, and did not apply to ashpits, to which I more particularly referred.

9108. But there would be no doubt as to the Local Board of Health having had the power to remove these things, and to pay for the expense of removal out of any rates that they may have thought proper to levy?—No, and that is what they have now undertaken, by taking the whole town into their own hands. The expense of that will be defrayed by a rate.

9109. There was no inefficiency in the law; it was merely the unwillingness on the part of the ratepayers to incur the expense of enforcing the law?—No doubt.

(*Mr. Clephan.*) There was an objection to making the ratepayers clean individual persons' houses at the expense of the general body. It may be proper enough to clean the whole town at the expense of the general body, but we should not have a part cleaned at the expense of the rest.

(*Chairman.*) The ratepayers would have been wise to do so nevertheless, seeing that they must maintain the widows and orphans of those who are killed by it, and so on. They have not yet got, I think, to look at the true financial bearings of the question.

9110. (*To Mr. Haggie.*) With reference to the power of the 60th section authorising the Local Board of Health on certain certificates to order a house to be whitewashed and cleansed or purified, has that power at any time previous to August 1853 been put in operation?—Not that I am aware of. I have not heard of a case.

9111. You do not doubt, I suppose, that there is an immense proportion of the habitations of the poorer classes in this borough which are in a condition so filthy and unwholesome as to call loudly for the exercise of that power?—No, I do not doubt it; from my personal experience I think it is highly desirable that they should all be visited periodically for that purpose.

9112. Do you think, for instance, with a view to the carrying out of the powers of that section, that it would have been desirable for the Local Board to have appointed the

officer of health, whose certificate would have been sufficient to enable them to effect that object?—Decidedly.

9113. With regard to the powers under the 61st, 62d, 63d, 64th, and 65th sections, with reference to slaughter-houses, I believe that on the 3d of March 1852, you did issue regulations for the management of slaughter-houses?—Yes.

9114. Do you know whether those regulations have been insisted upon?—To a very great extent, they have.

9115. Have the beneficial effects of that been obvious?—There is no question of it, but there is still room for improvement.

9116. I see that on the 3d of March 1852, there was one byelaw made with reference to the cleansing of dwellings. "The occupiers of any premises within the said corporate "district shall whitewash or otherwise cleanse and keep cleansed the interior of their "premises, so that no offensive smell shall be caused by or proceed from the same." I am afraid that byelaw has never been insisted upon?—I am afraid not.

9117. The byelaw as well as the statute has been equally neglected in that respect?—Decidedly, except in the case of the registered lodging-houses.

9118. With reference to the power of the 66th section with regard to common lodging-houses, that power, I believe, has been put in operation fully; the parochial surgeon having stated that the beneficial results of that moreover had been obvious?—Yes.

9119. (*To Mr. Town Surveyor.*) Is that your impression too, viz., that the powers of that section have been well carried out?—Yes.

9120. And that the public has been able to see the beneficial results of it?—Yes; I believe that to be the case.

9121. (*To Mr. Haggie.*) With reference to the powers of the 67th section, forbidding the letting or occupation of cellars, have those powers been put in force?—On one or two occasions, I think they have.

9122. Were these the only occasions which called for the exercise of the power?—I should say not. Even in new houses it has been neglected.

9123. It was stated to us by the parochial surgeon with regard to several streets yesterday, that a considerable proportion of the mortality had, to his knowledge, been in cellar dwellings?—Yes; within a few yards of where I reside myself, it has been so.

9124. So then, in fact, there have been circumstances in the condition of the borough calling loudly for the exercise of these powers, which nevertheless have not been exercised?—Yes.

9125. With regard to the management of public streets under the powers of the 68th section, enabling the Local Board to cause these streets to be levelled, flagged, channelled, and altered, has anything been done?—Yes; there has been a considerable outlay in that matter; but a great deal yet remains to be done.

9126. You cannot of course do everything at once, but would you say that the Local Board have proceeded with reasonable diligence in the exercise of that power?—I think scarcely. I think there has still been a lagging in that matter.

9127. (*To Mr. Town Surveyor.*) Do you agree in that?—Yes; there has been a considerable amount done.

9128. But do you think that the powers have been exercised to the full extent to which they might reasonably have been expected to be exercised?—By no means.

9129. (*To Mr. Haggie.*) Then the 69th section gives an additional power, namely, the compelling the paving and so on of private streets. I am afraid in respect of that very little has been done?—Very little. I do not know that anything has been done; in fact we suffer ourselves from the fact of its having been left undone.

9130. (*To Mr. Town Surveyor.*) Do you know any occasions on which the provisions of that 69th section have been put in force, beside the case of Grahamsley Street?—Yes; Ellison Street West, and Mirk Lane.

9131. Do you know any other cases in which it would have been desirable that they should have been put in force?—A great many.

9132. Have you ever made suggestions to the Local Board to that effect?—I have often done so; I have recommended the Board to take into their hands the construction of proper streets.

9133. With regard to private streets, though, where they could not in the first instance take the matter into their own hands, have you ever suggested that the owners should be compelled to pave and put them in proper order?—Yes, I have.

9134. And they have not complied with the suggestion?—No.

9135. Do you know whether any discussion followed, or what resulted in respect of your suggestions?—(*Mr. Haggie.*) It was the fear of law expenses in having to compel the parties to pay. The fear of getting into law with them, I think, operated very seriously against its being done.

9136. The possible expenses attendant on the exercise of a salutary power were considered a sufficient reason for not exercising the power at all?—Yes.

(*Mr. Clephan.*) More than possible, actual outlay. They were resisted, and the ratepayers had to pay.

9137. (*To Mr. Clephan.*) I understand you to say that, in one case at least, they proceeded to exercise the powers of the 69th section, but that they were put to expense in recovering the sums expended in the exercise of the powers?—I do not know whether

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that section applies to this case or not. It was a case in which notice was given to certain parties to do certain things, and in which they did not do them, wishing the Board of Health to do them in their place, and then, when they were done, the parties objected that more had been done than was covered by the notice, and they got a decision of the Bench in their favour; so that the surplus came on the ratepayers.

9138. And the result of that was to discourage the board from the exercise of their powers altogether?—No, they have acted upon them since, but it was to some extent a discouragement.

9139. (*To Mr. Town Surveyor.*) The powers of the 72d section, as to requiring notice before laying out new streets and so on, you have insisted upon?—Yes, with great benefit.

9140. With regard to the compulsory supply of water, Mr. Main stated that the powers of the 76th section were practically insufficient, owing to the wording of the clause. That, I suppose, will have interfered a good deal with the exercise of the power?—Yes, to a considerable extent.

9141. Nothing, I suppose, has been done as to reception-houses for the dead, which is a remoter matter?

(*Mr. Haggie.*) So remote that we scarcely ever hear of the necessity.

9142. I suppose Mr. Kell will be able to give us an account of all the rates which the ratepayers have been called upon to pay for sanitary operations?—I expect so.

9143. (*To Mr. Haggie.*) Then, the upshot of your evidence apparently would be to this effect: that a great many very valuable powers conferred on the Local Board by the Public Health Act have, with slight exceptions, been allowed to remain inoperative?—Yes, or rather been adopted so slowly as to become absolutely an objection rather than a benefit.

9144. And that up to the time of the outbreak of cholera, in September 1853, there hadbeen a great neglect of very salutary and beneficial powers?—Most decidedly.

9145. That the question of exercising divers of these powers was on different occasions brought in one way or another before the notice of the Local Board?—Yes.

9146. But that the majority of the Local Board decided on not exercising those powers, and mainly on the score of expense?—I should say so; that must have been their reason. They are all wishful that they should be adopted eventually, but they wish to go on so gradually as to let the expense be trivial.

9147. Do you think that any considerable proportion of the members of the Local Board are themselves privately and pecuniarily interested in the matter otherwise than as simple ratepayers?—Some of them are. I do not know that that operates.

9148. I merely ask you as to the fact?—Yes; I believe it is so.

9149. Are any considerable proportion of the members of the Local Board of Health owners of courts and entries; do they possess houses inadequately provided with proper ashpit and privy accommodation, or would any considerable proportion of them be personally the owners of tenemented property?—Not a considerable proportion of the Council; but a few active working men of the Council have such property, I believe.

9150. (*Mr. Clephan.*) But you do not think that that operates much?—I should hope not; I have been willing hitherto, to think not. I should not like to conclude that that was operating.

9151. (*Mr. Bateman.*) Your impression is that it does not operate to an injurious interference with works of public improvement?—I should say so.

9152. (*Chairman.*) Still, it is a fact that a certain proportion of the active members of the Local Board are themselves owners of tenemented property, requiring great sanitary improvement, and therefore liable to considerable expense for the carrying out of that sanitary improvement?—That is quite a fact.

9153. It is also a fact that the question of expense in carrying out these powers for the purpose of sanitary improvement has been the main cause alleged for not putting those powers in operation?—Yes.

9154. Have you yourself any personal knowledge of the poorer districts?—Yes, I have.

9155. Were you here yesterday?—A part of the time. I heard Mr. Brady's evidence.

9156. You would agree in the statements probably which have been given, as to the very improper form of house construction which prevails in large portions of the districts occupied by the poorer classes?—Yes.

9157. The nature of it being such as to render adequate ventilation almost impossible?—Almost impossible, in some cases quite impossible, except by pumping it in and drawing it out again.

9158. In going through these places, have you had occasion to see signs of the great deficiency of privy and midden accommodation?—Yes, to an alarming extent.

9159. And when you found such things in existence, what was their state?—They were not fit for any human being to go into; not in any case. I do not remember one instance where they were fit to go into.

9160. Estimating the population of Pipewellgate at 2,000, or rather under, would you agree in the statement that at least nine-tenths of that population had literally no privy accommodation whatsoever?—Quite so.

9161. The consequence would be that the females and the children, and the sick folks among all that nine-tenths of the population would be obliged to use kits and vessels in their own single rooms, and in one another's presence?—Yes.

9162. Which kits and vessels would certainly have to be kept in the rooms for a considerable proportion of each twenty-four hours, till the next coming round of the scavengers' cart, unless previously emptied into the court or entry, to remain there for ever?—Yes.

9163. In going into these tenements, have you habitually seen those kits in the rooms and at the stairheads?—Principally at the stairhead, sometimes in the room.

9164. Inside the house as an habitual thing?—Yes.

9165. Within a foot or two of the door of the room?—Yes.

9166. You have noticed in the private courts and entries that these places are hardly paved at all?—They are hardly paved at all.

9167. Nor drained at all?—Nor drained at all, except along the natural declivity.

9168. Nor scavenged either?—Nor scavenged in a regular way.

9169. So that if one dirty fellow in a court chose systematically to empty his kit into the court, the contents would remain there for ever?—Until it was washed away. I have seen the surface, house after house, covered with such refuse close to the very doors where the people live. They did not even take the trouble to go three yards further on where there was a little runner, but they threw it out and let it take its chance.

9170. A considerable proportion of the population of the poorer districts are of very dirty habits?—I do not see how they can be otherwise; they have not the opportunity of keeping themselves clean. It was wonderful to see some of the houses, how very nice and clean they were inside, when everything surrounding them was so very filthy. These houses were exceptions, however.

9171. It also would be true, no doubt, that you have what may be called rather a low type of the poorer classes here to some extent, and that their personal habits are exceedingly dirty?—Yes, the tramps and beggars and that sort of people are generally dirty. The working classes themselves, I believe, are inclined to be cleanly if they have the opportunity.

9172. With regard to a certain per centage of the poorer population, they have dirty personal habits, tending to increase the evil arising from other circumstances over which they have no control?—Precisely.

9173. (*Mr. Clephan.*) Do you know as to New Gateshead, that where the people have water-closets some of them so neglect those places and abuse them that they cannot go to the water-closets, and that they make them sources of nuisance?—I do not.

9174. (*Chairman.*) I dare say you would not doubt that you have a certain proportion of population here which is very reckless?—I do not doubt that.

9175. Which would be very capable, at all events until they were educated into better habits, of neglecting and abusing sanitary advantages?—Exactly.

9176. But you would not believe that of any large proportion of the working classes?—No, I would not.

9177. Have you also noticed, with regard to the state of the houses in these poorer districts, that the walls are often damp, and not always with pure water only, and that they are often rotten and dilapidated into the bargain?—Yes; I have even known them to live above a stable or byre where the floor was broken through, and if you put your face over the hole you could feel the hot effluvium arising from it like steam.

9178. You could feel it as well as smell it?—Yes.

9179. And the interior of these tenements you have found low and dark and ill ventilated and crowded?—Yes; and unwholesome in every respect.

9180. (*To Mr. Town Clerk.*) There does not seem to be any difference whatsoever as to the facts of the case?—I should think not.

9181. It is admitted by every one that the larger proportion of the habitations of the poorer classes are, in almost every sanitary respect, very defective?—Yes, and that observation is by no means confined to the older parts of the town.

9182. (*Mr. Clephan to Mr. Haggie.*) Do you live in one of what are called the best parts of the town yourself?—One of the most healthy, I believe.

9183. One of the more aristocratic parts of the town?—Yes; in West Street.

9184. What is your own domestic condition?—I feel as if I was living in a nest of filth, the effluvia arising from which, though not apparent, must be very injurious to my family.

9185. Has a large house next to you become a tenemented house?—It has.

9186. (*Chairman.*) It seems that there is no sewer within a hundred feet of your house then?—There is no sewer at all; the water goes round to the sump, and has to be cleared out occasionally; that sump is partly under my house and partly under the houses of the neighbourhood.

9187. It is merely a water cesspool?—It is a water cesspool in connexion with a well, and from that well the people in the neighbourhood get a supply of water. They will not use the Whittle Dean if they can help it; they have not got over the prejudice yet. That pump is going night and day. I have heard it at one o'clock in the morning.

9188. With reference to another cause of nuisance, namely, the smoke nuisance, nothing has been done as to that?—No.

(*Mr. Town Clerk.*) We had no clause, unfortunately, in our provisional order, with regard to smoke.

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9189. (*Chairman to Mr. Town Clerk.*) With regard to offensive trades, under the 61st to the 65th sections, what has been done?—The Local Board have granted one or two licences; and a question, which is of some importance, has arisen, as to the authority of the Board under the Act to recal a licence, when once granted; although the business should prove more offensive than was anticipated. The matter engaged the attention of the Local Board of Health for some time yesterday.

9190. (*Mr. Clephan.*) Did they at the time grant the licence contrary to the advice of the surveyor?—They did; under the idea that the surveyor's opinion, if acted upon, would be too stringent upon the tradesmen of the town, and would be prejudicial to the advancement of trade; and on the personal assurance of a gentleman, who was then a member of the Council, but who has since died, that it should not be a nuisance, the licence was granted.

9191. (*Chairman.*) It is the 64th section to which I refer, enacting that certain offensive businesses, bone-boiling, and so on, shall not be newly established without the consent of the Local Board of Health. That power has been enforced?—That power has been enforced.

9192. No new place has been established without the licence of the Local Board?—That is so.

(*Mr. Haggie.*) So far as they know.

9193. (*To Mr. Haggie.*) Would you like to make any observations with regard to the water. Do you usually take Whittle Dean water?—I have occasionally done so.

9194. At the time of the outbreak of the epidemic?—Then and long before that it was not fit to drink. It was very often muddy, and at present it is very sandy; however, it is better than what we then had. It is, I fancy, a sort of Hobson's choice with us, we do not know what to do.

9195. You do not think it very good?—It is not very nice to drink; it is better a great deal than it was.

9196. Have you noticed anything in the taste or smell?—Not in the smell; I have noticed the taste.

9197. Of what kind?—It was more from iron I think than anything else; it had probably been lying long in the pipes and had got partly the taste of the iron.

9198. (*Mr. Clephan.*) In justice to the ratepayers, let me ask you, did not a deputation wait upon the Town Council, pressing upon them to go forward with the sewerage and to take certain steps, which, if the Council had taken, would have been an expense upon the ratepayers, and would have enabled the Council to make drains at their charge; and did not they urge upon the Council that the neglect of doing so was driving people away from their property?—I believe that is the case; the plea that they came forward with was that they could not get their streets paved, and that they could not do so until the sewerage was taken in hand.

9199. The Town Council were going forward with plans and preparing for the drainage of the eastern district. The owners of houses in this district came before the Council, pressing the Council to have a sewer made as quickly as possible. They stated that in consequence of their houses being in a bad state, and especially after the cholera, when the people got alarmed, their tenants were leaving their houses because they were not habitable.—(*Mr. Town Clerk.*) And those were houses not two years old.

9200. (*Chairman.*) The evil had reached its climax, and the landlord was being overreached in his own penny-wise, pound-foolish contrivances?—(*Mr. Clephan.*) Yes.

(*Mr. Town Clerk.*) The roads in the immediate vicinity of these houses not being public highways, they were entirely neglected and became a mere mass of filth. In my opinion it is as necessary for the owner of such property to make a good road to his house as it is to put a roof upon it. They neglected that duty, and they called upon the Council to do it for them, and so urgently, that our very industrious town surveyor was to neglect everything else till he had got that done.

9201. (*Chairman to Mr. Haggie.*) If you except the changes which have been made in the sewering, paving, and scavenging of the High Street, and perhaps one or two other main thoroughfares, do you think that the sanitary state of the town has materially improved, say in the last seven or ten years?—I should say not.

9202. Especially as regards the poorest and worst districts, where sanitary improvement was most materially required, there has been little or no improvement within that time?—I should say literally none.

9203. Since Dr. Reid was here in 1843 for instance?—No.

J. Robson, Esq.

JOSEPH ROBSON, Esq., alderman, examined.

9204. (*Chairman.*) You are chairman of the Public Health Committee of the Town Council, and of the Local Board of Health?—Yes.

9205. Have you been a member of that Local Board ever since its formation?—I have been a member but not chairman. I have been in the Council also ever since it was established, except one year.

9206. You have been mayor of the place also?—Yes.

9207. You have heard the evidence which has been given by Mr. Peter Haggie, and Mr. Town Surveyor Hall, in answer to our detailed questions respecting the different powers which the Local Board of Health have had under their Act?—Yes.

9208. Do you agree with what you have heard stated by those gentlemen?—Yes. I think the only fault is that the Local Board do not in my opinion put those powers into operation thoroughly.

9209. It has been stated generally, that, if we except one or two powers which have been pretty fully exercised, and one or two other powers which have been partially exercised in a few instances, the main bulk of the powers possessed by the Local Board have at all events been very inadequately exercised?—Yes.

9210. Some of them entirely neglected?—Yes

9211. A good many of them only inadequately carried out, and but a very few which really have been put in force to the full effect to which they might have been, even under the circumstances?—Yes. I have seen the benefit, however, of what we have done.

9212. Have you any intimate knowledge yourself of the different localities of the town?—Yes.

9213. You have heard the evidence which has been given both yesterday and to-day?—Yes.

9214. You agree as to the facts of the case being properly represented in that evidence?—Perfectly. With reference to the plan of the drainage, I recollect a discussion in the Council upon it. I do not know whether it was put to the vote or not, but I know there was an order to the town clerk to write to the Board of Ordnance to see what a plan of the whole borough would cost; and I believe, if my memory serves me, that the statement came down that it would cost from 500*l.* to 600*l.*; and certainly I only regret now, as I did at that day, that it was not done.

9215. (*To Mr. Town Clerk.*) Have you a reference to that circumstance?—Yes, at page 13 of Mr. Rawlinson's report in the evidence which I gave before him.

9216. Be good enough to read it?—"There is no public survey of the town or district "comprehending a system of levels, although the subject has engaged the attention of the "Town Council, who applied to the Ordnance Office for an estimate of the probable cost of "a plan of the Ordnance survey of the borough, upon a scale of five feet to the mile; but "on learning in August 1848 that such a plan would cost the borough above 300*l.* "(although the survey had been taken at the public expense), the idea of procuring it was "abandoned; the state of the borough fund not justifying the appropriation of so large a "sum for that plan, however desirable the possession of it might be."

9217. And on this point you have to make exactly the same statement to us at this day which you made to Mr. Rawlinson in 1849?—With this addition, that on the Public Health Act being applied to Gateshead, we made another application, and then we found that instead of 300*l.* the cost would be 600*l.*

9218. (*To Mr. Robson.*) Do you agree also in the answers which Mr. Hall gave to the general question, as to the improvement of the sanitary state of the town in the last few years?—Yes; it is improved materially in some places, but not in the courts and alleys.

9219. Not in the worst parts?—No. I think it is almost impossible to improve the lower parts of the town. There is one point which I am very glad that Mr. Brady mentioned yesterday, and that is that parts of Gateshead are built upon a most objectionable foundation; the rock is quarried out for building purposes, and then the quarry is filled up with all sorts of filth, on the top of which is built a street. It is most deplorable.

9220. We have one such instance in Victoria Street; do you know of any more?—Yes; Grahamsley Street is in the same way, and others.

9221. There are several instances then in this borough of streets, having been built upon accumulations of town refuse, shot into old quarry holes?—Yes; it is most abominable; on the top of all the filth that can be found.

9222. (*Mr. Clephan.*) In addition to that, I think these places generally have no drains or sewers, and therefore all the moisture goes down to that accumulation?—Exactly.

9223. It is a sponge of filth?—Exactly.

9224. (*Mr. Bateman.*) I think in perambulating the district which you have pointed out, we ascertained that there is a large extent of the higher parts of Gateshead in which the only drainage consists of boreholes into the old workings, by means of which those workings are being gradually converted into an immense cesspool?—Yes; there is a large glass manufactory, for instance, where I believe they have a drain, but its filth all goes into the coal-seam.

9225. (*Chairman.*) Perhaps the accumulations of years may be there already?—Yes.

9226. (*Mr. Bateman.*) What depth are they below the surface of the ground?—They will get into a seam perhaps five or six fathoms down, and then go away into the coal mine.

9227. Which way does the level dip?—It dips to the east.

9228. Does the water from these seams make its appearance again anywhere along the banks of the river?—Not that I know of, although it is very natural to think that it will. There are many draw-wells all the way up, and if a well be to the east of any of these places, I have no doubt it will get the water from this refuse.

9229. Do the draw-wells go down to the same level?—Yes; if they go further down the water leaves them.

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9230. Do you apprehend any mischief from that?—Yes, I think there is. Only this winter at Walker Terrace, where they were putting in the drainage, they were opening the rock, four, five, or six feet deep; and the filth may go into a well, if not into the the first, into the second.

(*Mr. Town Clerk.*) Mr. Robson refers to a row of the finest houses in Gateshead, quite to the west of the town. There is a street laid out further south of it, called Regent Street. Two or three of the houses of that street are built; it will come down eventually to West Street. The plans of these houses came before the board; they were very well arranged plans; and as they have no main sewer in that locality, they proposed to carry the drainage of those houses down to the old coal workings, in the high main seam. So also with Walker Terrace. The board allowed them to go on in the mean time, expecting that a main sewer would soon be made, and that they would join on to the main sewerage of the town. However, instead of making a pit down into the workings, the drain was left open, and upon complaint, a notice was served by the board that they should abate this nuisance, and instead of making a continuation of the sewer into High Street, they are actually at this moment carrying it down into these old workings.

9231. (*Mr. Bateman.*) These workings being about twenty feet below the surface?—Yes.

9232. (*Chairman.*) There is no sewerage system in the neighbourhood into which they can drain?—None.

9233. Then the circumstances are such that you are compelled to sanction this course? Yes; all the west part of the town round the workhouse, Claremont Place, Sedgwick Place, and the whole of that neighbourhood, is drained into the coal workings.

9234. (*Mr. Bateman.*) Do you ever perceive any effluvium arise from the drainage into the coal workings?—No.

9235. I suppose that one of these boreholes is sometimes immediately opposite a dwelling-house?—Yes.

(*Mr. Town Clerk.*) There is one in High Street, at the corner of Ellison Street, by the Albion Hotel.

9236. (*Mr. Bateman.*) What is the state of the health of those houses?—I am not aware of any difference.

9237. (*Chairman.*) It certainly cannot be advantageous, but you have not yet traced any specific bad results from it?—No, but my own opinion is, that some day or another they will feel the effects.

9238. Is there any other point on which you would wish to say anything?—No; merely what you have heard before; mine is just the same sort of evidence.

(*Mr. Town Surveyor Hall.*) I wish to say a word with regard to the smoke nuisance. We have unfortunately under the Public Health Act, no power for the suppression of smoke, and my own opinion is, that nothing would confer such a perceptible benefit upon the town, in respect of the health and habits of the people, as the suppression of the smoke nuisance.

9239. (*Chairman to Mr. Hall.*) The six medical gentlemen, who in 1849 made a report to Mr. Rawlinson, in considering the causes most potential in raising the mortality of Gateshead in general, and of Pipewellgate and Hillgate in particular, refer first of all to "the deterioration of the external atmosphere by the unconsumed smoke constantly "issuing from the numerous manufactories in the borough, which cannot but prove highly "prejudicial to health." That is a statement in which you would agree?—Yes.

9240. And it has also been stated, that the smoke nuisance is at least as bad now as it was in 1849?—It gets worse every day; because new manufactories rise up in the town, and no provision is made in the furnaces for consuming the smoke.

9241. (*Mr. Clephan.*) Could you consume it in a glasshouse?—I have no doubt it might be consumed; but if not, it might be consumed in other factories.

9242. (*Mr. Town Clerk.*) In your opinion is there a perceptible deterioration of the atmosphere by the smoke from the steam engine fires alone?—Very great indeed.

9243. (*Mr. Clephan.*) Do you think that the smoke nuisance creates in this locality a sort of despairing hopelessness of cleanliness?—I do; that is my object in calling attention to this nuisance.

(*Mr. Robson.*) The telegraph wires are now being put into metal pipes. Just where I live they were taking down some wires this morning. I was asking the workmen about it.

9244. (*Chairman.*) How is that?—(*Mr. Town Clerk.*) The telegraph wires here wear out so rapidly by the corrosion of the atmosphere, owing to the acrid gases contained in it, that they do not last more than one-third of the time here that they do elsewhere; and they have accordingly abandoned the practice of exhibiting them in the open air, and put them underground in channels or pipes.

9245. It is a fact, I believe, that all through Newcastle and Gateshead one hardly does see a telegraph wire?—Yes. The operation has been going on for some months. Six months ago there were some twelve or fourteen lines of wire all along the High Level Bridge; but they are all removed now.

9246. Within the last six months they have altered their system, with a view to getting the telegraph wires out of the reach of the excessive atmospheric corrosion?—(*Mr. Town Surveyor.*) Yes; they were making the alteration on the High Level Bridge this morning; and the reason of the change has been correctly stated by Mr. Kell.

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9247. (*Chairman.*) Have you paid attention to the localization and other features of the several cholera visitations in Gateshead?—I have.

9248. Is it the fact that in the visitation of 1849 the cholera broke out in Pipewellgate?—Yes.

9249. Had it done the same in 1831?—No; the earliest death in 1831 was in Bottlebank.

9250. In 1831 were the chief ravages of the disease in Pipewellgate?—Yes.

9251. The first death in 1853 was not in Pipewellgate either?—No.

9252. But it began very early in Pipewellgate?—It did; in fact Bottlebank is a part of the same mass of houses. Bottlebank and Pipewellgate are all one, lying side by side along the river slope.

9253. (*Mr. Bateman.*) Houses similarly circumstanced as nearly as possible?—Yes; and in close connection with one another.

9254. (*Chairman.*) With reference to Victoria Street in which the first case of cholera occurred in 1853, the houses, according to this paper of yours, which you have been good enough to hand in, were originally built for the occupation of a single family each, as self-contained houses?—They were.

9255. Since then, to a considerable extent, they have been occupied as tenemented property?—They have.

9256. That is to say, let out in tenements to more than one family, although not by any means adapted for such divided occupation?—Yes.

9257. Is it the fact that the first death by cholera in 1853 was of one of thirty persons inhabiting the same house, which contained six rooms, two of them cellars, and was occupied by five families consisting of thirty persons?—Yes.

9258. Did you on the 25th of October, accompanied by Mr. Medical Officer Wilson and Mr. Town Surveyor Hall, take the census of that street as well as you could?— I did.

9259. You found that it contained how many families?—114 families.

9260. Living in how many rooms?—160 rooms.

9261. And comprising how many persons?—488 persons.

9262. Of those 488 persons how many died of cholera in the first month of the late epidemic?—Fifteen persons.

9263. And of those fifteen ten were inmates of cellars?—Yes; six of the ten on the west side of the street next to the cow-byre, and four on the other side.

9264. On the 28th of November did you also take the census of New Gateshead?—I did.

9265. New Gateshead is divided into two distinct portions?—Yes.

9266. In one of which there occurred a very considerable mortality, and in the other but a single death?—A single death, which moreover is not properly due to that locality.

9267. (*Mr. Bateman.*) Which was imported from another district?—Yes; the mother of a child died elsewhere, and this child, when already ill and dying, was removed to its grandmother's house at New Gateshead.

9268. (*Chairman.*) Referring to the infected portion, what number of families did you find there?—Ninety-one families.

9269. Inhabiting how many rooms?—157 rooms.

9270. And containing how many persons?—417 persons.

9271. How many cholera deaths were there among those 417 persons during the time of the epidemic?—Thirteen.

9272. In the other or non-infected part of New Gateshead you had no death at all, except that of the child brought from elsewhere as already mentioned?—That is so.

9273. Among how many inhabitants?—Twenty families occupying nineteen houses. Each of those houses contains two very good living rooms and two smaller ones, or two large closets which might be occupied as bedrooms, if necessary.

9274. In explanation then of the extreme difference of mortality in these two places you notice first, that in the uninfected part the inhabitants had a much greater number of rooms to a family, viz., seventy-six rooms to twenty families as compared with 157 rooms to ninety-one families; they were consequently very much less crowded?—Yes.

9275. And you also stated yesterday that in the uninfected part the ventilation was very much better?—Yes; the houses are complained of as being draughty.

9276. The uninfected part was also, I think, inhabited by a superior class of persons?—Yes.

9277. Those are the only circumstances you have ascertained in explanation of the great difference in the mortality of these two places; except, by the way, that in the uninfected part they had privies well ventilated and pretty well kept, and in the infected part very ill kept and ill-ventilated water-closets?—Yes; the other houses are by no means well ventilated, and some of the water-closets, I have been told, are made nuisances, they are choked up and spoilt, and people will not use them.

(*Mr. Usher.*) I know that to be a fact.

9278. (*Mr. Bateman to Mr. Clephan.*) Are the privies of the other houses kept in a better condition?—Much better; Messrs Hawks and Crawshay built them for their work-people,

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and having no sewer they could not have water-closets: and Mr. Crawshay told me that they built the ashpits very shallow, that the tenants might be compelled to have them cleaned out very frequently.

9279. (*Chairman.*) Have you inquired into the total number of persons who died in the late outbreak of cholera in 1853?—I have.

9280. What was the number of persons who died?—433 persons died of cholera and diarrhœa.

9281. What observation have you to make with reference to the station of those persons?—I have to state that the bulk of them were so obscure in station as not to be members of families contributing directly to the relief of the poor.

9282. What is the number of direct ratepayers in Gateshead?—1,930.

9283. Out of those 1,930 ratepayers and their families what number died?—The number of ratepayers that died was ten, and of ratepayers and members of ratepayers' families twenty-nine. Then I say if we assume the number of each family to be four and a half (five is the general number), that would give you a total of 8,685 persons as constituting the families of the ratepayers of Gateshead; the number of direct ratepayers and members of families of direct ratepayers that died having been twenty-nine out of the 8,685.

9284. That is, as nearly as possible, one in 300?—Yes.

9285. Out of a population of 25,000 there died 400 and upwards?—433.

9286. Which is rather more than one in sixty?—Yes.

9287. So that the mortality among the ratepaying families was one in 300, while over the borough at large, including all the poorer classes, it was one in sixty, or five times as great?—Yes.

9288. What is the rateable value of the property in Gateshead?—54,182*l.*; and the rateable value of the property occupied by the families of the twenty-nine who died does not amount to 400*l.* I wish to remark also that many amongst the twenty-nine who died were living in very bad localities, in Oakwellgate Lane and in Pipewellgate, and in the very worst places.

9289. Then the mortality was almost entirely confined to the families of a few ratepayers living in notoriously unhealthy localities, and of the poorer classes who were not ratepayers at all?—Yes; none of the persons whose names are accustomed to come before the public were swept away by the cholera from Gateshead.

9290. There were no deaths then to speak of among the higher or middle classes?—I think you may say that practically that was the case.

9291. (*Mr. Bateman.*) Better lodgings, better food, and all the other comforts of life being had in more abundance appear to have exempted those who enjoyed them?—Yes, I have no doubt of it.

9292. (*Chairman.*) Did you also go carefully through Victoria Street to inquire into the circumstances of the mortality in the individual houses?—I did.

9293. How many cases did you find where there had been three deaths in a single house?—Two cases.

9294. Taking the first of those two cases, how many families did you find inhabiting that house?—Eight.

9295. Comprising what number of persons?—Thirty-two persons.

9296. And in what part of the house did the three deaths take place?—In the cellars.

9297. All of them?—All of them.

9298. In the second case in which there were three deaths in a house, or immediately after removal from it, how many families did you find in the house?—Four.

9299. And how many persons?—Twenty-five persons, but I ascertained that in that house there were thirty persons living when the deaths occurred.

9300. What number of rooms were there in those houses in which these thirty-two and thirty persons respectively were living?—Six rooms, including the two cellars. I am not sure that there might not be seven, but if there were seven it was merely by one floor being cut into three rooms.

9301. So that if there were eight families in the first house, there must have been two families living in one of the rooms, supposing there were seven rooms; and if there were but six rooms, then there must have been two families living in each of two rooms or cellars?—There must have been.

9302. How many cases did you find of two deaths in a house?—Three cases.

9303. In the first how many families were there in the house?—I found only two families in the house at the time the census was taken, and ten persons, occupying three rooms, three others being empty.

9304. In the second case how many families did you find, and how many persons?—Four families and fourteen persons in five rooms.

9305. Have you any observation to make upon that case?—One of the two deaths was in a cellar there also.

9306. Taking the third case, how many families did you find?—Six families, twenty-two persons, in six rooms.

9307. Have you any observation to make as to the deaths there?—Both occurred in the cellars.

9308. How many other cases were there in which single deaths occurred in the cellars of that street?—Three cases, but one case I think was hardly a cholera case.

9309. Then there were two other cases, at least, in which the mortality took place in the cellars?—Yes; and a third was removed from a cellar to the workhouse, and there died.

9310. Did you also find any other circumstances worthy of note in connexion with the places where the high mortality of three in one house occurred?—Yes; two underground rooms, partially lighted by sunken windows, were inhabited by two families. A single family occupied the floor on a level with the street. That is in the house in which the first death occurred in Gateshead. The remaining inmates possessed the upper rooms. There is a common ashpit in the yard, and the monster nuisance, the cowbyre, denounced at the last meeting of the Gateshead Board of Health, and reported against by the town surveyor some twelve or eighteen months ago, is close by. I may also state that, whilst making the survey, a very respectable looking married woman came out, as they always do if they see that you take an interest in them. She begged that I would come to look at a nuisance which she said was enough to breed the cholera. I went to the place, and her neighbour's ashpit was leaking through into her yard, and a most disgusting nuisance was being created close to the poor woman's door.

9311. This moreover was in one of the houses of the street which is built on a mass of town rubbish heaped into an old quarry hole?—Yes.

9312. (*To Mr. Town Surveyor.*) You and Mr. Clephan have been in communication, I think; and several of the details of this tabular statement of yours have been obtained from Mr. Clephan, have they not?—The population of New Gateshead and Victoria Street only; all the other part has been taken by myself.

9313. (*Mr. Bateman.*) You obtained the other information by house-to-house visitation?—Yes.

9314. (*Chairman.*) Leonard's Court seems the worst district here, that is to say, the mortality has been more than one in twenty?—Yes.

9315. Next to that Oakwellgate, where it was one in twenty-six, seems to be the worst?—Yes.

9316. And next to that, the south side of Hillgate, where it was one in twenty-eight?—Yes.

9317. Next to that Victoria Street, where the deaths were one in thirty-two; next to that, the south side of Pipewellgate, and the Banks, where they were one in thirty-three; next to that, the north side of Pipewellgate, where they were one in forty-one; next to that New Gateshead, where the deaths were one in forty-two; then the Island, and Bottlebank, where the deaths were one in forty-five; while the best of all was the Barn Close district, where the mortality was one in forty-eight?—Yes.

9318. I suppose these comprehend all the worst parts of Gateshead?—Yes.

9319. Have we any reference to Lister's Buildings?—No, not by itself; that is included in the Oakwellgate district, which is the worst but one.

9320. When you make this computation for New Gateshead, do you include the population of both portions?—Yes; the whole group of New Gateshead.

9321. Then if you had been computing the mortality in the infected block alone, of course it would have been very much more, one in thirty-two or so?—Yes; very much; about that I think.

(*Mr. Clephan.*) I may also state, as to the best parts of the town, that though it is quite true that the influence of the cholera affected the whole population, whatever it might be; and although we were all more or less disturbed in body by it, yet it was merely a slight uneasiness or indisposition in the better parts of the town in good houses. With respect to the top of Windmill Hills for instance, if you went to inquire of the medical men, you would find that it was bad in some very nasty unwholesome part only.

9322. (*Mr. Bateman.*) Even on the top of the hill?—Yes; for instance, one man died, and I asked the medical man, Dr. Barkus, about him. He said: "I was called in to him, "and found him living in a stable converted into a house." There were twelve persons living in one room, an Irish family. A man might die of cholera upon the top of Skiddaw, if he were living in that domestic state.

9323. A man may commit suicide as well upon Skiddaw as in the lowest dungeon in Newcastle?—Yes.

9324. (*Chairman.*) Have you also from papers which you filled up at the time of the census in 1851 prepared certain returns relative to Rabbit Banks, and to the block of buildings about there?—I have.

9325. How many houses did you find in that district?—Ninety-nine.

9326. How many families?—Ninety-nine.

9327. And what population?—501.

9328. In that population, each family occupying a whole house, what mortality occurred?—Six deaths.

9329. Have you prepared a similar return with reference to the north side of Pipewellgate?—Yes.

9330. How many houses, families, and persons?—Thirty houses, fifty-nine families, 282 individuals.

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9331. Here then, where there were nearly two families to a house, what mortality did you find among those 282 people?—Five.

9332. Which is proportionately almost double the mortality which occurred in Rabbit Banks, where there was but one family to a house?—Yes, but these houses on Rabbit Banks are mostly mere hovels.

9333. Taking the Bottlebank, High Street, and Bridge Street district, how many houses did you find?—Eighty-four.

9334. How many families?—185, including 907 persons; there were twenty-one deaths.

9335. In this case the families were more than two to a house?—Yes.

9336. Did you then find the proportionate mortality among the 907 people there still higher than in the Pipewellgate district, where there were less than two families to a house?—Yes.

9337. In this case it was one in forty-five, whereas in the previous case it was one in fifty-six?—Yes.

9338. So that according to the statistics of those three places, the mortality bore a pretty distinct ratio to the amount of overcrowding, and to the numbers of families and persons congregated in each house?—Yes; and I may express my opinion that that overcrowding is the most powerful predisposing cause.

9339. (*Mr. Bateman.*) You have arrived at that impression from a pretty careful examination of what has come before you?—Yes; overcrowding is always accompanied by a great many evils; that is to say, you find a less moral class of persons and a great deal of discomfort round about them; but I think that overcrowding is one most powerful predisposing cause.

9340. (*Chairman.*) And you find a great deal of such overcrowding in this borough?—A very great deal.

9341. Can you mention to us any specific instance?—Yes; I may state that in Hillgate at the time of the census there were four houses, one of which contained sixteen families with seventy-one inmates; another contained thirteen families with forty-nine inmates; another contained twelve families with forty-seven inmates; another contained eleven families and forty-eight inmates.

9342. In fact those four houses contained fifty-two families, and 215 people?—Yes.

9343. Do you conceive that anything similar to that existed in August 1853?—I should say so. I should think the overcrowding, perhaps, would have been rather aggravated then than otherwise, because we have been very prosperous of late. Our works are all well employed, in full swing, and there is a great demand for accommodation for working people.

9344. (*To Mr. Superintendent of Police.*) Is it your impression also that about the time of the epidemic was the fullest time of the year?—Yes; every year it is so.

9345. Then you would have been as likely to be overcrowded in the month of September last year as at any other season?—Yes; as every harvest approaches, we are so.

9346. It was approaching its maximum?—Yes.

9347. Can you form a judgment as to whether you could have found in September 1853 any instance of overcrowding comparable to that of four houses containing fifty-two families, and 215 people?

(*Mr. Pearson.*) Perhaps Mr. Clephan will state the size of the houses.

9348. (*Mr. Bateman to Mr. Clephan.*) Can you tell us the amount of air which each of these 215 people would have had to breathe during the night?—I cannot tell. Of course the number of families will give some measure of the size of the house, and Mr. Pearson is here, and he can give his evidence and state the exact dimensions of those houses.

(*Mr. Pearson.*) No, I cannot; I have not come here to give any evidence Some of those houses are seven stories high.

9349. (*Chairman to Mr. Pearson.*) Are you the owner of any one of those four houses?—No.

(*Mr. Clephan.*) Does Mr. Pearson dispute my statement?—(*Mr. Pearson.*) No; I say that you had better give the size of the houses, because my house perhaps will hold fifty persons, while another will hold five.

(*Mr. Clephan.*) I could not give the dimensions.

9350. (*Chairman to Mr. Clephan.*) You have been present to-day and yesterday the greater part of the time?—Yes.

9351. You have heard the general evidence which has been given by several gentlemen, without any variation worth speaking of, with reference to the very defective state of the town in respect of sanitary matters?—I have.

9352. Do you agree in that evidence?—I do, generally.

9353. Are there any particulars which occur to you, in which you would vary or depart from the opinions which have been expressed?—No; I may state as to the local authorities, that I do not think the local authorities are at all more to blame than any of the rest of us living in the town. The authorities are chosen by ourselves; we elect them every year, and I have never known a gentleman who has been rejected by the ratepayers beceuse he did not go fast enough. No blame can be thrown upon the local authorities that does not attach to the community quite as much. I have never heard any great

complaints made against them for not proceeding faster. The people of Gateshead do not complain that their local authorities do not spend enough of their money in improvements.

(*Mr. Pearson.*) I believe they go a little faster than the people wish.

9354. (*Mr. Bateman to Mr. Clephan.*) You never heard any of the ratepayers complain of their not going fast enough?—Very seldom; I have never heard them say, "You ought "to throw upon us heavier rates, and do a great deal more of public improvement."

9355. You said that you never knew of any gentleman being rejected because he had not gone fast enough?—No; I do not remember any case of the kind.

9356. Do you know of anybody being rejected who has been disposed to go too fast?—No, I do not know that I do, but I believe that the most effectual cry at an election would be a cry of economy. "If you will send me into the Town Council, we will have "the rates reduced." I should find that a better cry to get in with than the cry that I would spend more money.

9357. (*Chairman.*) Do you wish to say anything about the water?—No, I have nothing to add, except that the water was not in good condition; but I do not think, looking at the facts of the case, that it had much connection with the epidemic, because I find that localities were affected irrespective of the water. Localities which were using the Whittle Dean water had no cholera at all, and no sickness, whilst others that also used the water had cholera and sickness.

9358. (*Mr. Bateman.*) And you infer that, if the water were an aggravating cause to any extent, all parties using the water would have been affected?—I should infer so. There were great complaints of the water. I know, for instance, that previously to the cholera, Mr. Pattinson, of the Felling chemical works, told me that his men came to him and complained that the water was not good, and that it made them unwell; the consequence was, that they discontinued the use of Whittle Dean water for drinking purposes, and they had water from wells.

9359. And were they better after that?—After the use of the Whittle Dean water was discontinued by these men, the epidemic broke out in a virulent manner down at Heworth, and there was great mortality at Heworth, although these men had ceased the use of Whittle Dean water.

9360. Then, their giving up the use of the Whittle Dean water did not prevent them from being ultimately attacked by cholera?—It did not.

(*Mr. Robson.*) I do not think they used much of the Whittle Dean water, because they have so many good wells about there.

(*Mr. Clephan.*) Mr. Pattinson told me that the men used the Whittle Dean water till they complained of it.

(*Mr. Robson.*) I know that Gray and Company's men used other water.

(*Mr. Clephan.*) But I know that Gray and Company's men used Whittle Dean water till they complained of it, and gave it up. Mr. Gray told me so.

9361. (*Chairman.*) With reference to the general question of the sanitary state of the town, you have been resident here for some years?—Yes.

9362. If we except the improvements or incipient improvements of sewers, paving, and scavenage in two or three of the principal thoroughfares, do you know of any material improvement which has been made in any other part of the town in the last ten years?—Perhaps not any very great improvement. The town generally, however, has improved very much since my knowledge of it.

9363. Within what time?—Within say twelve or fourteen years.

9364. You think that since Dr. Reid was here, in 1843, there has been a marked improvement?—I think there has.

9365. Even in other than two or three of the principal thoroughfares?—I think, looking over the town generally, there has; but in Pipewellgate, and Hillgate, and other places, which I believe most of us look upon as being hopeless, there has been no change.

9366. But those hopeless, or nearly hopeless districts, are very extensive, are they not?—They are.

9367. Pipewellgate and Hillgate alone, I suppose, contain 3,000 people. Then, if we get into Leonard's Court and Lister's Buildings, and into all those places, they comprise a considerable part of the population?—Yes; I may also say, as to the cause of the cholera, that, having the impression that overcrowding and closeness was a very powerful predisposing cause, I was induced to trace out the localities of the deaths; and I was surprised to find that the great bulk of the persons died in the yards. The number of persons who died in the front streets was very small compared to the number that died in yards, except in New Gateshead and Victoria Street; but a great number of persons died in the yards branching off from the High Street.

9368. You are not a member of the Local Board?—I am not.

9369. You have nothing, then, to add to the evidence which has been given by Mr. Hall, Mr. Haggie, and so on?—Nothing at all.

Mr. R Foreman and Mr. John Usher.

9th March 1854.

Mr. Robert Foreman and Mr. John Usher, examined.

9370. (*Chairman to Mr. Foreman.*) You are clerk to the Board of Guardians here?—Yes.

9371. And you are also registrar for the district of the Gateshead union?—I am.

9372. Will you be good enough to tell us what is the number of houses in the parish of Gateshead occupied as self-contained houses by single families?—Mr. Usher, the assistant overseer, gives that.

(*Mr. Usher.*) 1,838.

9373. How many houses are occupied as tenemented houses?—1,585.

9374. You have not been able to ascertain accurately the number of separate tenements in those tenemented houses?—I have not; in consequence of the owners of tenemented property not having furnished me with returns. I furnished them with a form which we have, but they have neglected, a number of them, to make those returns. I have no other way of obtaining the information which you require.

9375. Computing about five members to a family the population of the 1,838 self-contained houses would be about 9,000?—Just so.

9376. And taking the population of the town at 25,000, that would leave 16,000 people to be accommodated in the 1,585 tenemented houses?—Yes.

9377. If we divide 16,000 by 1,600, which is very near the number of tenemented houses, it will give ten to a house, which, at five to a family, will give on the average two families in each of the nearly 1,600 tenemented houses?—Just so.

9378. That, I presume, would be a pretty fair computation?—That is so, I believe.

9379. (*Mr. Bateman.*) Would not five to a family, under those circumstances, be pretty large in tenemented houses?—From four to five, I think.

(*Mr. Clephan.*) The number of families in the whole of Gateshead in 1851 was 5,263, and these people occupied 3,380 houses.

9380. (*Chairman to Mr. Clephan.*) Mr. Usher has given me a return of 3,423 houses in the parish of Gateshead, which shows a slight increase on the number of houses occupied at the census of 1851; and I think you said that the number of families at the census in 1851 were 5,263?—Yes.

9381. From that we will deduct 1,838 as occupying self-contained houses, which leaves 3,425 families to occupy the 1,585 tenemented houses, which will give rather more than two to a house?—Yes.

9382. It will be two and one-sixth?—Yes.

9383. Therefore, in stating that there are single families to each of the 1,838 self-contained houses, and two families to each of the 1,585 tenemented houses, I am rather understating the amount in the latter point?—Yes; as to overcrowding I may state one other fact, which is certainly very remarkable, and which I ascertained when I was at Leicester at Christmas. Now they never had the epidemic in Leicester, although in each epidemic they have had one Asiatic cholera case, not always fatal, but sufficient to show that the influence was there. Now, I inquired of some of the inhabitants well acquainted with the town, the chairman of the estate committee and others, and they told me that in Leicester there was not a family that had not a house to itself; that the rule of the place was a house to a family.

9384. (*To Mr. Foreman.*) What was the amount of the extra expenses incurred during the late epidemic for medical attendance and services, nurses, drugs, and so on, in the parish of Gateshead?—558*l.* 1*s.* 10*d.*

9385. The same expenses for the Heworth district?—229*l.* 12*s.* 7*d.*

9386. For the Winlaton district?—178*l.* 9*s.* 2*d.*

9387. And in the Whickham district?—128*l.* 6*s.*

9388. Making a total of 1,094*l.* 9*s.* 7*d.*?—Yes.

9389. Then the expenses of burying the dead for the Gateshead parish?—156*l.* 6*s.*

9390. For the Heworth district?—19*l.* 8*s.*

9391 For the Winlaton district?—2*l.* 11*s.*

9392. For the Whickham district?—6*l.* 13*s.*

9393. Making a total of 184*l.* 18*s.*?—Yes.

9394. What is the weekly expense which has since been incurred for the maintenance of the people who, by that epidemic, were rendered chargeable to the union, first in Gateshead parish?—5*l.* 17*s.* 4*d.*

9395. In the Heworth district?—2*l.* 5*s.* 6*d.*

9396. In the Winlaton district?—9*s.*

9397. And in the Whickham district?—1*s.* 6*d.*

9398. Making a total weekly expense of 8*l.* 13*s.* 4*d.*?—Yes.

9399. Taking the weekly expense at 8*l.* 13*s.* 4*d.*, the annual expense in consequence of this epidemic will be about 450*l.*?—Yes.

9400. (*Mr. Bateman.*) For how many years would that go on?—I do not know.

9401. Can you make an estimate?—There are one or two that we have got quit of already.

9402. (*Chairman.*) If we set it down at eight years' purchase, supposing they are all disposed of and done with on an average of eight years, that would make an expense to the union of 3,600*l.*?—Yes, but many of them are Irish, and they will soon be off the books.

9403. (*Mr. Bateman.*) You think eight years is too much?—Yes.

9404. (*Chairman.*) How many years will you take; will you take six?—Six years.

9405. (*Mr. Bateman.*) Will they be all cleared off in six years on the average?—Six years on the average.

9406. (*Chairman.*) Six years' purchase of 450*l.* would be 2,700*l.*?—Yes.

9407. And your expenditure out of pocket for nurses, and so on, was 1,094*l.*?—Yes.

9408. And for burials?—184*l.*

9409. Then on the whole, the epidemic will have cost you within a trifle of 4,000*l.*; 3,978*l.*?—Yes.

(*Mr. Clephan.*) There was a public subscription raised as well; a very large subscription, about 600*l.*

(*Mr. Foreman.*) Not in relief of the poor rate.

(*Mr. Clephan.*) No; and there was a great loss of trade; the town was deserted almost.

9410. (*Chairman.*) When the ratepayers come to understand what they have absolutely thrown away for want of providing sanitary arrangements, I think they will be a little more reasonable. It is much cheaper to expend money in prevention and get something by it, than to expend it in cure, and gain nothing but one's pains by it.—(*To Mr. Foreman.*) Can you put in a statement of the poor rates for the last few years?—No, Mr. Usher is prepared to do that. I can give what the guardians have expended for three or four years.

9411. Do you raise it here by a rate in the pound or by a certain amount upon each village?—A rate by the pound.

9412. Would you like yourself to give us any evidence in the matter of our inquiry generally?—No, I think not.

9413. (*To Mr. Usher.*) What has been the amount of the poor-rates within the last twelve months?—In the last twelve months there have been four rates for the year ending December last. The rate for the quarter March 1853 was 7*d.* in the pound. The rateable value at that time was 53,091*l.* 5*s.*, which produced a rate of 1,548*l.* 9*s.* 10¾*d.*

9414. What was the second one?—In June the rateable value was 53,833*l.* 5*s.* at 7*d.*, producing 1,570*l.* 2*s.* 8¾*d.*

9415. The third?—In September the rateable value was 54,182*l.* at 7*d.*, producing 1,580*l.* 6*s.* 2*d.*; and the rate ending December 1853 was upon 54,326*l.* at 11*d.*

9416. Then in the course of the year you had three calls of 7*d.* and one of 11*d.*, that is 2*s.* 8*d.* in the pound for the year 1853?—Yes; the 11*d.* was in consequence of an additional call from the guardians of 600*l.*

9417. (*Mr. Bateman.*) Would your calls under ordinary circumstances have been four 7*d.* calls?—They would.

9418. The extra 4*d.* you consider due to the epidemic?—To the additional 600*l.* called for by the guardians.

9419. And did that 4*d.* pay it off?—We think it will. In the first place the three 7*d.* rates included a rate of 2*d.* in the pound for what is called borough rate, which up to the present time has been collected with the poor-rate; it was only 5*d.* in reality.

9420. (*Chairman.*) Then the poor-rate, omitting the four twopences, was really 2*s.* in the pound?—Yes.

9421. And would have been 1*s.* 8*d.* but for the epidemic?—Yes.

9422. Do you think we might take it, as the average of the last few years, at 1*s.* 8*d.* in the pound?—It has been more than that.

9423. (*Mr. Town Clerk.*) Has it ever been less?—Never less.

9424. (*Chairman.*) Is there any other point?—I am not aware of any.

9425. If you would like to make any observations on any points which we have examined the other witnesses about, we should be glad to hear them?—I have had great experience in Gateshead, having lived in it twenty years, and having been a public servant during that time, and I do not think I could add to or diminish from the evidence.

9426. (*Mr. Town Clerk.*) You were first superintendent of police?—For eight years.

9427. Afterwards governor of the workhouse?—For eight years.

9428. And have since been assistant overseer and are now?—Yes, I have experienced a great deal about these localities.

9429. (*Chairman.*) Have you seen an obvious improvement in the state of the lodging-houses in consequence of the surveillance which has been adopted?—No doubt there has been a decided improvement in the lodging-houses, which they very much required.

9430. As assistant overseer you still go among them?—Occasionally as my business calls me there.

9431. You do not see the same number of fever cases at once in those houses as you used to do?—Not nearly; they are very much better regulated.

9432. The health of the population is very much better in consequence?—They are more cleanly too; they are compelled to be cleanly.

9433. (*Mr. Town Clerk to Mr. Superintendent of Police.*) How many lodging-houses are there now registered?—Eighteen.

9434. (*Chairman.*) That would not at the utmost bring 1,000 people under surveillance in that way?—Not nearly so many.

Mr. R. Foreman and Mr. John Usher.

9th March 1854.

9435. And we may reckon the poorer classes at 15,000 or 20,000?—(*Mr. Town Clerk.*) That is so. If we had any means of placing the other houses under the same surveillance as the common lodging-houses we should be glad to adopt them.

9436. (*Chairman.*) You would begin to feel it in your poor-rates, too?—Most certainly.

Mr. T. H. Scott.

Mr. T. H. Scott examined.

9437. (*Chairman.*) Where is your property situated?—On the south side of Pipewellgate.

9438. At the foot of Wardman's Stairs?—No, it is to the east of Wardman's property.

9439. (*Mr. Town Clerk.*) But adjoining it?—Yes, back to back.

9440. What number of persons have you there; how many persons per room?—Father and mother and the family, more or less.

9441. What is the average number of persons occupying each of the rooms in your houses?—Some persons have four children, some six.

9442. (*Chairman.*) Have you any rooms in which there are two families at once residing?—I am not aware of it.

9443. How many houses do you own altogether there?—There are forty tenants.

9444. In how many houses?—Ten.

9445. You have ten houses in Scott's Row occupied by forty tenants?—Yes.

9446. Have any of those houses got any drainage?—Yes, the fronts of the houses are drained from top to bottom.

9447. (*Mr. Town Clerk.*) What kind of drain is it; is it an open channel?—Part of it open, and part not; about the top of the bank it is closed.

9448. (*Chairman.*) It is a surface gutter, which in parts is covered?—Yes.

9449. (*Mr. Town Clerk.*) Are there any rooms below the surface?—No.

9450. Have you any rooms half way below the surface?—They are hitched up; but there are no cellars.

9451. (*Chairman.*) In those ten houses how many water-closets have you got?—There is no water-closet.

9452. How many privies have you got?—We have one.

9453. For your ten houses?—It is leased property, part of it. It is freehold to me, but I let the lease to another person to build houses upon it.

9454. How many of the forty rooms and tenants have you in your own control, belonging to yourself?—Twenty.

9455. And for those twenty in your own control you have only one privy?—Yes.

9456. Where is it situated?—On the back side of the front house, going up the bank of the row.

9457. Is it on the slope of the bank?—It is. There is an ashpit and a privy. The ashpit is ten feet high, and the privy so high that it goes on the top along with the ashes. The entrance from the street is at the front of the row.

9458. (*Mr. Bateman.*) Is there a house over that ashpit and privy?—No.

9459. Nobody lives over it?—No.

9460. (*Chairman.*) When did you empty it last?—I emptied it, I think, two months since.

9461. (*Mr. Bateman.*) That gallery, and the doorway at the further end of the gallery, are over this ashpit and necessary?—Yes.

9462. (*Chairman.*) And the doors of the houses open into that gallery?—The privy is opposite the building.

9463. You say you had this emptied out at the beginning of 1854. When did you empty the privy and ashpit before that?—I do not know what the time was; before the cholera.

9464. How often do you empty it in the year?—We cannot keep it longer than three months.

9465. Do you empty it four times a year?—Yes, and oftener.

9466. You mean to say that in three months it becomes absolutely full and overflowing?—Yes.

9467. When you get into the inside of your houses, are they clean?—Yes, I cannot complain of the tenants.

9468. Are the staircases all sound?—Yes.

9469. And altogether you think the condition of the dwellings is pretty good?—Yes, I think it is.

9470. (*Mr. Bateman.*) You think they would not be improved by being pulled down and built over again?—There is only one thing I have to say. I believe the owners in Pipewellgate have as good a wish for it to be kept clean as possible; but you cannot have it kept clean, for want of sewers.

9471. (*Mr. Town Clerk.*) Where would you have the sewers?—In the street.

9472. Why have you not got them?—Because I cannot.

9473. Have you ever applied for leave to put them across the street?—I want them up the passage.

9474. I hope you do not expect the town to make a sewer up your own private property. The river being on the other side, you would only have to cross the street?—Mr. Price would not let me go through his property.

Mr. T. H. Scott.

9th March 1854.

9475. (*Chairman.*) You will not oppose the levying of any rate for sewering Pipewellgate ?—I would make no objections. If they would give me leave, I would do it at my own expense before my own door, Scott's Buildings, and take the water away from my own property. I could do that.

9476. (*Mr. Town Clerk.*) You would have no objection to our making the rate, but perhaps you would have an objection to paying it ?—No; I have to depend for my income upon my tenants.

9477. (*Chairman.*) You have heard a good deal of the evidence which has been given; if you have anything to say upon it, we are ready to listen ?—I have been here these two days, and what has fallen from the different people I have not much reason to say is incorrect.

9478. (*Mr. Town Clerk.*) You cannot contradict any statement which you have heard ?—Yes, the statement that there was only one privy in Pipewellgate; I can prove that there is a great deal more. I know there are about twenty in Pipewellgate.

9479. (*Chairman.*) There is no public one, however ?—No, not to my knowledge.

9480. If we say that the rest of Pipewellgate is much in the condition of your own property, namely, having one privy to twenty tenants, and none at all for twenty more, is that about the true state of things ?—I dare say some have none at all; in Scott's Buildings they have a good deal of accommodation.

9481. Then you think that your property where there is one privy to twenty families, and none at all to twenty more, is on the whole better off than Pipewellgate generally ?—Yes.

9482. (*To Mr. Rankin.*) Have you anything to add ?—I think not.

9483. (*Mr. Town Clerk.*) You have been rather extensively employed in collecting rents of tenemented properties, both of property belonging to yourself and to other parties ?—Yes.

9484. In what parts of the town are those properties situated ?—In various parts.

9485. Are they any of them in Pipewellgate ?—Yes.

9486. Any of them in Hillgate ?—Yes.

9487. Just below Mr. Dunn's property ?—Yes.

9488. What is the condition of that property ?—It is not in a good condition.

(*Mr. Town Surveyor.*) Nothing was done by the owners of that property, although notice was given them by the Board of Health to make certain improvements; and the Board therefore took it into their own hands to execute them, and we are now busy in doing it. This is the property (*showing the same*); all these deaths took place here. This is the property for which I understand Mr. Rankin is agent, Price's Buildings, and this is Dunn's Buildings.

9489. (*Mr. Bateman.*) It was in that property that they could not get the coffin out of the door, owing to its being so flooded ?—Yes.

9490. (*Chairman.*) They had to get it out of the window ?—Yes.

9491. (*Mr. Town Clerk.*) The late surgeon of the dispensary told me that when visiting some cholera patients in those premises, he could stand at the window of one room in which there was a corpse, and pitch a marble into the windows of four other rooms, each containing one. (*To Mr. Rankin.*) You have probably heard the descriptions given by others of Leonard's Court also ?—The description which I have heard is correct.

WILLIAM KELL, Esq., further examined.

William Kell, Esq.

9492. (*Chairman.*) You were good enough yesterday to hand to me copies of all the annual reports of the Gateshead dispensary since its existence ?—Yes.

9493. Will you be good enough to refer to the annual report for the year 1844 and read the passage which you will there find marked in pencil ?—"Since the last anniversary "meeting an important inquiry has been pursued in this borough, with respect to the "sanitary condition of its population. The disclosures which have been made have been "not less serious than surprising. Few persons in the higher ranks of life have been "hitherto aware of the dangers to which they are exposed from the contaminated atmos-"phere of filthy passages and ill-ventilated, ill-drained, and ill-watered tenements in which "their poorer neighbours are unhappily located. Now, however, that the unpleasant "truth has been revealed it may be fairly expected that immediate steps will be taken for "protecting the public health by contributing to the sanitary conveniences of the "poor."

9494. That is in fact a recognition in a public document of the notoriety given to the matter by Dr. Reid's investigation ?—Just so; I attended Dr. Reid in that inquiry, and perfectly concur in these sentiments. I was also one of the committee, of whose report that is a portion.

9495. Will you be good enough to turn to the report for the year 1849, and read what you there also find marked ?—"After an absence of seventeen years the cholera has again "appeared, but fortunately in a form less virulent, and with consequences less fatal than "before. The committee would fain believe that the long absence and the more favourable "results of this fearful disease in this quarter may be attributed in some degree to the "greater sanitary precautions and more extended benevolence, by which the public "generally have been actuated since its last visitation."

9496. That I believe refers to certain sanitary measures which were adopted in consequence of the great prevalence of Irish fever here, and in anticipation of that outbreak of cholera ?—That is so.

William Kell, Esq.

9th March 1854.

9497. And that again is a public recognition of the benefit which had been derived from the exercise of those sanitary precautions?—Yes.

9498. There is a passage also in the annual report for the year 1850; will you be good enough to read it?—In the year 1850 the committee of the dispensary report: "That "virulent scourge, the Asiatic cholera, made its appearance in the town about the beginning "of the past year, but fortunately its visitation was short and the number of cases not great. "In September however it reappeared in the southern extremity of the borough, at "Wrekenton, where its fatality was nearly as great as its virulence; about one-seventh of "the population of the village having become its victims. But your committee rejoice to "state that in the town itself, notwithstanding the bad situation, uncleanliness, narrowness "and want of pure air in such streets as Pipewellgate, Hillgate, &c., there were "comparatively very few cases indeed. Although this enemy is at present silent and "apparently at a distance from us, your committee would fain hope that the good work of "cleansing and draining the town, so well commenced by the corporate body, will be "actively proceeded with, and that it will soon reach such a state of perfection as shall "enable the inhabitants to be at least better prepared than hitherto for meeting such "melancholy and malignant visitations." The good work of draining there referred to was the making of a main sewer in High Street.

9499. Will you refer to the report for the year 1851, and read what is there marked?—"Your committee, upon the authority of the house surgeon, have to report, in presenting "the customary documents at the close of the 19th year, that febrile affections have been "more numerous than formerly, and especially scarlet fever, which made its appearance "in the spring, disappearing during the summer, and recurring in the autumn. It was "principally confined to the dirtiest localities, where the accumulations of filth, as is "always the case, tend still further to the increase of the disease. It is scarcely necessary "to call the attention of the authorities to the well known unhealthiness of some of our "crowded courts and streets, to prove the beneficial effects which must result from a proper "and effectual system of drainage. A single inspection of those hot-beds of disease will "satisfy the most sceptical, that, so long as filth is allowed to accumulate and poison the "atmosphere of these crowded suburbs, so long will diseases of a fatal and contagious "character continue to decimate their wretched inhabitants. Your committee would "still further call attention to the want of baths and wash-houses; a want severely felt "amongst the labouring population of Gateshead, and more especially by families "occupying but one room, where the washing and drying of clothes has to be performed "at the same time that one or more of the family are suffering from illness; thereby "increasing the sufferings of the patient, and tending still further to the spread of disease "amongst the other members of the family. Hooping cough, a disease comparatively "trifling in its effects among the children of the wealthier classes, but of a grave and fatal "character amongst the children of the poor, was prevalent in the spring. The want of "proper nourishment and clothing, the unhealthy, damp and crowded dwellings, the "improper exposure, and the neglect of the parents in procuring medical aid until "dangerous and fatal complications have supervened, all combine to render this affection "amongst the children of the poor one of the most fatal that medical men are called "upon to treat."

9500. There is another passage in the report for 1852; if you will oe good enough to read it?—They allude to small-pox having occurred. "The cases have been chiefly "confined to the crowded courts and lanes, the usual germinating localities of contagious "diseases. The committee, viewing the energy and activity displayed by the local "authorities in carrying out sanitary measures, trust that this subject may engage "their serious attention, with a view to the adoption of the requisite remedies." That has reference to the application of the Public Health Act. "It is to be hoped that, before "another year shall have elapsed, the full and complete drainage and cleansing of the "town will at least be far advanced, and that more commodious and suitable dwellings "will have been provided for the working classes. It is a fact unhappily too notorious, "that in overcrowded and filthy dwellings and localities the most fruitful sources for "developing and fostering contagious and infectious diseases are almost invariably to be "found. The overcrowding of dwellings when regarded in a mere sanitary point of view "is bad enough; but when put in a moral aspect it is even worse. At the present time "the great scarcity of suitable dwellings for the working classes being the chief cause of "the evil, the committee trust that the necessity which causes the adults of either sex to "occupy the same apartment, a circumstance productive of the most vicious and degrading "consequences, will ere long be entirely remedied."

9501. In the annual report for 1853 do you find another paragraph?—Yes. "There "has been an increase of febrile affections during the past year, chiefly confined to the "dirtiest quarters of the town, viz., its eastern portion and Hillgate and Pipewellgate. "Such increase may be sufficiently accounted for by the badly ventilated lodgings, and "the humidity arising from confined situations. The absence of sunshine with its "vivifying influence, and the constant neglect of sanitary precautions, all tend to augment "these complaints amongst a predisposed population. Our local authorities should be "encouraged to extend the improvements already made in our sewerage and drainage, and "to regulate, as far as is consistent with the rights of property, the construction of dwelling-"houses, with a view of affording better ventilation, purer air, and greater comfort to

"their occupants; and to mitigate also, as far as possible, those serious evils, which "cesspools and other noxious agencies inevitably entail upon the health and comfort of "the public."

9502. The annual report for 1854 is not published yet, I believe?—The report for the present year is in the press. I got from the printer this morning the manuscript, containing the following passage. "The committee of the Gateshead dispensary, in the "report of 1853, called attention to the increase of febrile affections in those localities of "the borough, which, if not the parents of disease, are its continual home; and they "invited support in aid of every effort which might be made by the local authorities for "their sanitary improvement. The year in which that report was made was destined to "give a solemn emphasis to the exhortation. The malady which gave birth to the "institution in 1832," (for it was on the cholera visitation in 1832 that the idea of establishing a dispensary was founded) "reappeared amongst us in the autumn of 1853, "and swept out of existence upwards of 400 of our population. Commencing its ravages "in an unclean and overcrowded district, it soon affected all parts of the town more or "less; and your committee are by this third visitation of Asiatic cholera confirmed in "their conviction, that, whatever may be its primary causes, it would never assume the "form of a widely wasting epidemic, were it not for overcrowding, closeness and filth, and "the demoralisation by which these evils are too often accompanied. Your committee "would therefore repeat the admonition to promote with zeal the necessary measures for "securing the cleanliness and health of the town, and the banishment of every preventible "cause of disease and premature death. This charity has peculiar reason to lament the "neglect of sanitary precautions. A second time has the Gateshead dispensary been "deprived of its house surgeon by the infectious fever of continuously diseased localities. "That office is once more vacant by the death of Mr. Charles Brown; who, worn down "by his incessant attention to the sick during the late epidemic, fell an easy victim to "febrile disease contracted in his attendance on the suffering poor."

9503. We have also in the first annual report of the Newcastle and Gateshead Sanitary Association a report on the sanitary condition of Pipewellgate prepared by Dr. Charlton. Are you acquainted with that?—I am.

9504. We may take it as in your judgment correct?—You may, certainly.

9505. Dr. Charlton and Dr. Robinson have both put it in as evidence on the other side of the water?—I was a member of the association at the time and recollect it perfectly. I do not at this moment remember whether that report contains a passage in which there is a warning to those who are living in better localities but surrounded by bad ones with overcrowded populations. I consider that very important, and one of those things most likely to arouse the population.

9506. Just look through that report and see if you can find the passage to which you allude (*handing the same to the witness*)?—No; it is not here.

The following is the Report alluded to.

A REPORT on the Sanitary Condition of PIPEWELLGATE, in GATESHEAD, prepared by Dr. CHARLTON for the Sub-Committee of Inspection, and presented by him to the General Committee of the Newcastle and Gateshead Sanitary Association, 17th August 1847.

The district on which the sub-committee of the western ward of Gateshead have drawn up the following report, is bounded on the north by the river, on the east by the Bankwell Stairs, at present a great thoroughfare to the railway station, while on the west it extends to the lane leading from the Pothouse Quay, and lastly is bounded on the south by the Windmill Hills.

The whole consists of one long and narrow street, east and west, with numerous narrow alleys, branching off at right angles, down to the river on the north, and up the hill which rises very abruptly, to the south. Thus the buildings are placed unfavourably as regards both light and drainage; the sun in winter is much hidden by the high bank rising to the south, while in rainy weather the wet runs in torrents down the steep declivity loaded with the filth and refuse that have been accumulated above.

The number of rooms visited by your sub-committee amounted to 268, containing 950 inhabitants, and of them 483 were adults, a large proportion it is true, but which may easily be accounted for by the numerous low lodging-houses, filled with railway labourers and workmen. Some of these lodging-houses were excessively crowded. In the Blue Bell Entry there are two, one of which is kept by a man named Williams, where five rooms contain eighteen beds, and each room accommodates every night nine or ten lodgers, and occasionally even more. In the same entry, but fronting to the main street, is another lodging-house, kept by a female named Miers, and also consisting of five rooms, containing fourteen most wretched and filthy beds, each of which is tenanted at night by two or three individuals.

In Armstrong's Buildings, which are in a most neglected and ruinous condition, there are also several lodging-houses tenanted chiefly by Irish of the very lowest class, and

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filthy beyond measure. The same may be said of the lodging-houses in Pitman's Entry, where fever prevailed extensively a month ago, and where it still (August 16th) continues to extend its ravages.

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Of 500 individuals, or rather 497 persons, from whom answers were obtained, 263 acknowledged that they could neither read nor write, and many more admitted that they could do one or both imperfectly. Your committee found that almost all the children and adults had been vaccinated, while a few had had the natural small-pox. Your committee seldom found more than two or three beds in a single room; but some of the lodging-houses contained as many as five or six beds in a single apartment, and that scarcely capable of being duly ventilated.

The average rent of these rooms seems to be about 1*s.* 6*d.* per week; the lowest found were 6*d.* and 8*d.*; some of the better rooms, with shops attached and opening into the main street, let for 6*l.* to 8*l.* a year. In Armstrong's Buildings there are two most wretched, crazy tenements, termed the rockery, where it is said little or no rent could be obtained by the landlord; and indeed, looking at the ruinous condition of the dwellings, your committee do not see that any rent could fairly be demanded.

The furniture of the lodging-houses, and some of the poorer rooms, is of the scantiest and most wretched description, almost all however have beds of some kind or other, though often only entitled to the bare name. Your committee met with but two instances where the inmates had no beds, but slept on dirty rags and straw. In one solitary case a donkey shared the room of a poor family, causing an intolerable ammoniacal stench, and giving great annoyance to the somewhat more respectable tenants of the room immediately above.

With the exception of Scott's Buildings, the rooms in general rarely exceed eight feet nine inches in height, they are lighted by a single window, and very few are provided with ovens, all the bakings being performed at the public ovens. (The ceilings and roofs are often bad.)

With the exception of Scott's Buildings and Scott's Row, almost all the houses in Pipewellgate are totally unprovided with privies of any description. Your committee met with but fourteen families, exclusive of those living under Mr. Scott, who had access to a necessary. The refuse, ashes, and filth of every description are placed in boxes or baskets and carried out to the main street, where a cart removes them early in the morning. But not unfrequently the ash-box is negligently placed just outside the door of the room, or on the stair-head, and remains there for days together, poisoning the atmosphere of the staircase, until it is completely filled, and is then carried down to the street.

Covered depôts for ashes are to be found in Scott's Buildings, and in a few other alleys; but the tenants of houses distant from the main street throw their ashes in front of their doors, where they often accumulate to a considerable depth. This is most common higher up on the bank; and when heavy rains fall, the filth is washed down the open gutters into the alleys below, and creates an insufferable stench.

There is one depôt for ashes which your committee cannot but consider extremely prejudicial, both from its position and from its mode of construction. It is an open cesspool, of a square form, and about five feet deep, placed near the top of the bank, at the head of the Blacksmith's yard. This cesspool is not watertight, for when your committee visited it yesterday, a filthy fœtid stream was oozing down the bank from one of the corners. The lower wall of this filthy depôt abuts against a house, the floor of which is considerably lower than that of the cesspool itself, and the room within, inhabited by James Aimes, a broom-maker, is rendered thereby intolerably fœtid and damp. This depôt has only been emptied twice since October last.

Almost all the inhabitants of Pipewellgate wash and dry their clothes within their own dwellings; those who live higher up the bank avail themselves of the open spaces there for the latter purpose. The supply of water is not good; it is only in a very few instances that the new water has been laid on. In by far the greater majority of the tenements, the inmates bring water for washing, &c., from the river, while drinking-water is sought from a well, called Kelly's well, at the extreme (W.) end of Pipewellgate, where the supply is always scanty and sometimes altogether fails. A good well formerly existed on the Bank-top, but that has been recently rendered quite unfit for drinking by a filthy sewer which is carried down from the privies at the Gateshead Railway station, and which opens in the wall close to the well. When the water is let off with force, to clear the privies, which is generally done towards evening or during the night, it splashes over from the sewer into the low trough of the well. In addition to this, two drain holes, for the surface water, have been cut in the high wall above the well, one of which is actually perpendicularly above the latter; and when your committee saw it yesterday the water in the trough was completely discoloured, by the muddy surface drainage that fell into it from above.

A few years ago Pipewellgate could boast of several excellent springs, but since the sinking of a pit, (Mr. Easton's) in the eastern part of Gateshead, most of the wells have ceased to flow.

Throughout the whole of the district visited by your committee, no covered drains exist; open gutters furrow the steep declivity of the banks, and discharge their contents

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into the alleys, from whence they are conveyed away, by a shallow surface drain, to the main street, and from thence to the river. In the more open parts of the bank, pigs are kept in great numbers; the sweepings of the sties are too often thrown out into the adjoining vacant grounds, from whence the moisture oozes down into the alleys and entries below. In some few places short covered drains are to be found in front of the houses, but open again after a very short course.

The main street in Pipewellgate is not well paved, and is unprovided with foot-paths: many of the entries are unpaved. The main street is seldom and imperfectly swept; the entries are generally swept only by the current of filthy water which descends from the banks after heavy rain. The main street is lighted by gas lamps, placed at great intervals; the entries are unlighted. The west end of the district, visited by your sub-committee, is unpaved; and in winter, as after wet weather, is scarcely passable either for carts or foot passengers.

The general health of the district cannot be said to be bad; but in some tenements, and these the dirtiest and the most ruinous, fever has not been absent for the last six months and more. Thus, in Pitman's Entry, numerous cases of fever have occurred, and many were still suffering from it when your committee visited that locality yesterday. Several cases of fever have also appeared in the ruinous tenements known by the name of Armstrong's property, and both there, and in Pitman's Entry, the majority of the inhabitants have more or less suffered from fever.

Among the nuisances, on a small scale, may be instanced the pipe manufactories, which vomit forth, from their short chimneys, clouds of suffocating black smoke; and also the shops for preparing tripe, of which several exist in this district.

At the west end of Pipewellgate are numerous manufactories, chiefly occupying the north side of the street. There are glue factories, chemical factories, glass houses, and colour manufactories, all of which contribute more or less to increase the impurity of the atmosphere.

Your committee would especially call the attention of the Association to the removal of the pig-sties and ash-heaps on the banks, to the obtaining a due supply of fresh water for the inhabitants, and the covering up of all the drains, which in their present open state cannot be otherwise than fruitful sources of disease.

9507. I think you were present this morning when we put questions to Mr. Hall with reference to the physical situation and position of the town and its gradients, founded on a statement which you made to Mr. Rawlinson in 1849?—Yes.

9508. That report you would confirm?—I now confirm it.

9509. We also asked Mr. Hall some questions relative to the local geology, similarly quoting your words to Mr. Rawlinson. You still retain the same opinions?—I do. My opinion has been confirmed by such excavations as have been made since that time.

9510. In the year 1849 you also made to the superintending inspector this statement with reference to the history of the sewers:—"The only built common sewer existing in "Gateshead prior to 1842 was made in 1773, on the rebuilding of Tyne Bridge and the "formation of Church Street, and it extended only from the end of Cannon Street to "the western end of Hillgate, and thence underneath dwelling-houses (and not through "Bridge Street) to the river Tyne. In 1842 a common sewer of ninety-nine yards in "length was made in Bridge Street, communicating with the sewer above mentioned "and terminating in the river underneath the bridge. It is five feet eight inches high "and four feet broad, with semicircular arched top of brick, perpendicular sides of stone "three feet six inches high, and the bottom of stone, forming a slightly inverted arch. "There was an open kennel from Oakwellgate to Church Street at its junction with "Cannon Street, of which a plan and section are given in Dr. Reid's report on the sanitary "condition of Gateshead. It has been since deepened and covered in by the Town Council, "and a public privy was erected over what appeared to be the most convenient part of "it, but the owner of the adjacent property pulled down the privy and closed the "opening into the sewer, and before or since that time no public privy has been formed "in Gateshead. The Town Council, as commissioners of the Gateshead Street Act, have "this year formed a sewer from the top of that last mentioned along Church Street and "High Street to the southern extremity of the town." That statement is correct?—It is quite correct. I prepared the statement myself, and I took it, of course, from public records; and as to more recent matters, those came within my own cognizance.

9511. Are you aware of any sewering having been performed since the time of Mr. Rawlinson's visit until the Local Board of Health began their operations?—There was none performed.

9512. Therefore this statement of yours to Mr. Rawlinson will represent the state of the sewerage at the time when the Local Board of Health began their operations?—That is so.

9513. In the 55th page of that report you gave Mr. Rawlinson a history of the burial grounds?—I did.

9514. You stated, "Until the year 1811 the ground attached to the parish church of "Gateshead was the only burial ground in the borough. It is on a table land; immediately "adjoining on the north there is a rapid ascent from the river. The soil on the northern "side is a stiff retentive clay, so much charged with water, that on vaults being opened

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"on that side of the churchyard the coffins are found swimming about like boats, and on "a grave being opened on that side of the ground, it fills with water so rapidly that "previous to any interment it is necessary to bale it. On the south side of the ground "the clay is overlaid by a deep bed of the yellow sand above referred to and is quite "dry. On the north-western side the ground is more than twenty feet above the surface "of the adjoining Church Street, from which it is fenced by a high stone wall. In 1811 "the burial ground of St. Edmund's Chapel was consecrated; it contains an area of two "roods thirty-three perches, and is situated in a rural district above the southern extremity "of the town, and is bounded on the western side by the Durham and Tyne Bridge "turnpike road. The most remarkable object in it is the obelisk to the memory of the "222 victims of the cholera, who were interred there in 1832. In 1848 St. Cuthbert's "Church and burial ground, situated in a rural district on the western side of the town, "were consecrated. The area of the ground is one acre, including the site of the church. "In 1825 the church and burial ground of St. John, Gateshead Fell, were consecrated. "The situation is considerably elevated and in a rural district, the area nearly an acre. "The rector of Gateshead Fell has complied with the request made to him with great "readiness, and his return of the interments since the consecration of the ground in 1825 "accompanies this report, as does also a tabular statement of the interments in each "burial ground in the borough in each year from 1839 to November 1849, viz., St. Mary's, "Gateshead, 3,455; St. Edmund's Chapel, 1,118; St. Cuthbert's Church, 137; St. John's, "Gateshead Fell, 1,127; total, 5,837." That is correct?—It is.

9515. No new burial grounds have been acquired since then, have they?—None.

9516. Therefore this statement of yours represent the actual facts as they existed in August 1853?—It does.

9517. The one burial ground of St. Mary's is very full?—It is.

9518. And has been shut up?—It has by an order in council.

9519. And never been re-opened?—It has not.

9520. There is also a statement, at the end, with reference to the circumstances attending the great fatality of cholera in Wrekenton, at page 66 of that report, which is still correct?—Quite so.

9521 Showing that though the mortality there was frightful, one in six or thereabout, the filth was equally so; and that the overcrowding especially was something fearful?—That is quite correct. I accompanied Mr. Rawlinson to Wrekenton, and the statement is quite correct.

9522. You found not merely an overcrowding of human beings, but animals crowded together with human beings in the same room day and night?—We did indeed.

9523. And there was nothing even in that excessive mortality which could astonish a person acquainted with the principles of sanitary science, after having witnessed the sanitary conditions and circumstances of the place?—Certainly not; notwithstanding the elevated position of the place.

9524. There were facts sufficient to account for any conceivable amount of mortality?—Quite so.

9525. You heard, too, I think, the evidence which was given by Mr. Brady and Dr. Jollie yesterday?—I heard Mr. Brady's evidence, not Dr. Jollie's.

9526. Mr. Brady stated that the epidemics, which had afflicted Gateshead, had been to all intents and purposes the same as those in Newcastle, though they might have varied in degree at different times?—I quite concur in every statement made by Mr. Brady.

9527. That this last attack of cholera was more severe than any previous one in respect of its extent?—Yes.

9528. But not probably in respect of its fatality?—I do not know that it was.

9529. You would agree probably in the evidence which was given by those gentlemen as to the different epidemics of cholera, and also the other epidemics, having generally prevailed most virulently in the same localities?—Certainly.

9530. You could put your finger upon spot after spot on the map, with reference to which you could say that every epidemic which had visited the town had made its appearance there at least, and generally with great severity?—That is so. The only difference which occurs to my mind at this moment is Victoria Street; and it arises from the simple circumstance, that Victoria Street was not built upon the former occasions of cholera visitation.

9531. Some new seats of disease have come into existence; but no old seats of disease have been abandoned by it?—It has never lost its character in that respect.

9532. With reference to the house construction in the borough, you heard the evidence which was given yesterday and to-day on that subject?—I did, and I quite concur in it.

9533. What in your opinion is the state of the dwellings of the poorer classes of this town generally, with respect to fitness or unfitness for habitation by human beings?—A large number of the working population of this town reside in dwellings which are not fit for human habitation. A large proportion live in dwellings which are prejudicial to health, and which inflict serious evil upon those whose means of gaining their livelihood depend upon their ability to perform a day's work. That evil is not confined to themselves, but affects their families also, and others dependent upon them. It is accompanied too by demoralisation to a serious extent; men lose self-respect when they are obliged to live in such dwellings as those to which I am adverting.

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9534. Could you mention to us any special districts of which you would say that the great majority of the habitations there are not fit for human beings to live in?—I would particularly refer to the dwellings on the south side of Pipewellgate and of Hillgate.

9535. Those at this moment are unfit for human habitation?—In my opinion, quite so.

9536. Do you think that it would be practicable to render them fit?—Not without pulling them down altogether.

9537. These represent the habitations of 1,300 to 1,500 people on the south side of Pipewellgate, and from 1,000 to 1,200 or more on the south side of Hillgate?—Yes.

9538. So that you would say that the residences of between 3,000 and 4,000 people in those two districts alone are, as regards the great majority of them at all events, not only unfit for human habitation, but incapable of being rendered so without being first pulled down?—That is so; and they are the cause of a very serious increase of our poor-rates.

9539. With reference to other districts which, though not perhaps irremediably bad, are still very seriously bad, would you mention to us a district or two?—I would mention Leonard's Court and Lister's Buildings; and I would also mention those buildings up at the high part of Barn Close, recently erected in a locality where buildings of a most salubrious character might have been placed.

9540. The population of Leonard's Court, I believe, we may take at about 300 people?—Yes; and many of them are living in rooms with unpaved floors.

9541. The population of Barn Close is about 1,500?—Yes.

9542. And the majority of the tenements occupied by those 1,800 people are, in your opinion, if not irremediably bad, still very seriously bad and unfit for human habitation?—They are.

9543. In which of the two categories, the hopelessly bad or the seriously bad, would you include the Island and Bottlebank?—I do not know a locality in Gateshead in which the houses are worse. Perhaps I may state that, when the cholera of 1832 had broken out in Sunderland, some alarm was created here, and I was called upon by one of the magistrates, and in company with him I visited every tenemented house in Gateshead, so that I had an opportunity of knowing where they were and what was the state of them; and I can safely say that the state of the property in the Island was then very bad, and of course it must be worse now, from the staircases, and floors, and all those places having become more worn and rotten, and altogether in worse condition.

9544. With regard to those two districts which you have stated to be, in your judgment, irremediably bad, I will ask you a few details to illustrate the grounds of your judgment. Are a large portion of the houses in the courts and entries of these districts, Pipewellgate, the Island, and Hillgate built back to back?—They are.

9545. Are other portions of the houses there built into the bank side so as to be back to back with a damp bank of earth?—They are back to back from east to west, and with a damp wall of earth on the south side.

9546. Are the entries between the fronts of those houses narrow?—Very narrow, and very often very dark.

9547. So that on a cursory inspection only of the localities one can come to no other conclusion than this, that ventilation is almost an impossibility there?—That is so.

9548. Are the walls of many of the houses made damp by the infiltrations from this moist bank of earth against them?—They are.

9549. And the entries between are so narrow that the sun rarely gets at them, and even the wind not nearly so much as it ought to do?—That is the fact; and the character of the infiltration is prejudiced by the unpaved and filthy state of the yards: the water, by the time it has filtered through to the wall of the premises on the lower side of the bank, being much charged with animal matter of a most noisome description.

9550. There are no cellar dwellings in those very old districts?—No; the introduction of cellar dwellings is of modern date in Gateshead.

9551. With reference to these worst districts, sewers and drains other than surface gutters may be said scarcely to exist?—That is so.

9552. I believe the want of privies and middens also there is extreme?—It is.

9553. And the habitual condition of those which exist there, as we ourselves have seen them, is very bad?—It is.

9554. A very large proportion of the population of these districts literally have no right of access to any privy at all?—That is so. I should mention also that this state of things has produced an indifference to cleanliness among them. A street immediately opposite here, Melbourne Street, a wide and airy street, was laid down a few years ago by a private speculator. Until the Public Health Act was applied to Gateshead, the local authorities had no power to interfere with the paving of it. The parties who purchased these, I know of my own knowledge, for I prepared several of the deeds, were under covenant to pave it. The original proprietor died; there was no one to enforce the covenant, and a sense of cleanliness and decency on their own part, and of the duty of promoting the comfort of their tenants on the other hand, have not been sufficient to induce them to pave that wide and spacious street, and there it remains to this day, a type of the demoralizing state which is induced among all classes by the want of sanitary arrangements.

9555. (*Mr. Bateman.*) The whole tone of the town must be lowered?—That is so.

9556. (*Chairman.*) With reference to the next class of districts which, though not irremediably bad, are still very bad, does the same form of house construction prevail?—It does to a certain extent, but not to so great an extent; and I believe as to this class, that by a

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regular system of sewerage, and by paving and scavenging the yards and courts, the condition might be very much improved.

9557. There are comparatively few houses there built into the banks of damp earth?—Very few.

9558. And most of them are more modern and less dilapidated houses?—That is so. The walls are less saturated with foul water.

9559. Altogether the house condition there is very much better?—Certainly it is. Before I quit the subject of Hillgate, I would mention that this spot which is so fatally dotted, Dunn's Buildings, is delineated in Mr. Rawlinson's pamphlet.

9560. (*Mr. Bateman.*) And very correctly too?—I was with Mr. Rawlinson when he inspected this district. He hesitated whether his report should contain this illustration or that of Price's Buildings. See how correctly Mr. Rawlinson foretold the result of another visitation upon us.

9561. (*Chairman.*) He knew that those two would be among the places worst affected?—He did.

9562. Generally, do you think that half of the population live in these districts which are very bad, if not worse than that?—I do. Our population consists mainly of skilled artizans, many of them of a very intelligent character; and it is a painful reflection to think that persons of that character should be so badly housed.

9563. One half at all events of the population of Gateshead are lodged in places which are rarely, if at all, fit for human habitation?—They are.

9564. With regard to the remaining districts where a better class reside, or where circumstances are more favourable, those districts still suffer very materially from the absence of any proper sewerage system?—They do. I speak from personal experience. I cannot have a water-closet in my own house.

9565. A considerable proportion of the better classes here have no sewer within probably 100 yards of them?—That is so. I consider that an efficient system of sewerage would materially increase the value of the property, and it would also tend very much to the increase of a better class of dwellings.

9566. With regard to the paving in the better districts, as we may still call them, that is to say in the districts inhabited by the better classes, and not presenting the worst sanitary features, the paving still is deficient?—It is; but I must say that it has been very much improved within my recollection; indeed I believe there has been more done in that respect since the year 1836 than all the years before.

9567. Had a good deal of improvement taken place between 1836 and 1851 when the Local Board began to operate?—Yes, a good deal.

9568. With regard to the scavenage of the better districts, what has been their state generally, say during the last seven years?—The scavenage of the courts and alleys has been very bad indeed.

9569. But without going into the very worst districts?—I mean in the streets and lanes. I do not mean such places as Leonard's Court, where there is no scavenging at all. It is not even yet satisfactory, though it has been better since the establishment of the Local Board of Health than ever it was before.

9570. (*Mr. Bateman.*) Before that, it was probably almost entirely neglected?—It was too much so.

9571. (*Chairman.*) Supposing you exclude the High Street, and one or two other main streets, should you say that the scavenage of even the better parts of the borough was satisfactory or otherwise in August and September 1853?—I should say that until the alarm took place, it was not attended to at all; then all hands were set to work.

9572. At the time of the outbreak also there were considerable accumulations even in what might be called not the worst districts?—Yes. I ought to mention that the scavenging, and indeed not only the scavenging, but the general state of the streets and roads in this borough has continued to be bad, owing to the division of jurisdiction.

9573. Even in the main street, in the High Street?—Even in the High street. The centre of the street is under the joint jurisdiction of the trustees of the Durham and Tyne Bridge turnpike road, and of the Tyne Bridge and Wearmouth Road trustees; while the footpaths are under the jurisdiction of the Local Board of Health.

9574. (*Mr. Bateman.*) Does that relate to the maintenance of the road?—Yes.

9575. The cleansing of the road depends upon whom?—Upon themselves. When we made our sewer up the High Street, we were called upon and compelled to pay damages to the trustees of the road for taking up the surface.

9576. You made it under an Act of Parliament?—Yes, but they stated that they had sustained damage by the road softening; a subsidence took place after it was reformed, and we had to pay the extra expense.

9577. (*Chairman.*) With reference to the habits of the people, and the bearing of those habits upon the virulence of the epidemic, we should like to have your opinion?—A great many of the unskilled labourers employed in our manufactories are strangers to the place; a great many of them from Ireland.

9578. (*Mr. Bateman.*) Tramps?—A great number of them are tramps from Ireland and Scotland. Their habits are of the most degraded and filthy character, they seem to have no self-respect; as long as there is room for them to lie down they will increase the crowded state of their dwellings. The skilled artizans, who are principally natives

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of this district, are of a much better class, much more orderly, their wages are good, and they live better. If they were located in cleanly habitations, where their self-respect would be promoted, I have no doubt that it would very much increase their value as subjects.

9579. (*Chairman.*) Considering the general nature of the habitations which they are obliged to occupy, the extent of the domestic accommodation afforded them, in respect of privies, middens, and so on, and the inevitable condition of the surface of the entries in which they live, do you think that they have the means of keeping themselves in a proper condition, even if they were to try very hard?—They have not; and I have often witnessed, with great pain, the exertions made by their wives in scouring the floor of a room opening into a dirty court, where of course it cannot in the long run be kept clean.

9580. (*Mr. Bateman.*) It is the same kind of thing, I suppose, as prevailed in the keelmen's houses on the other side of the water?—Quite so.

9581. (*Chairman.*) Taking the question generally, and considering the sanitary state of the town on the whole, we have evidence to this effect that, in respect of putting down certain sewers, of paving and scavenging in the main thoroughfares, and perhaps one or two side thoroughfares of this borough, certain improvements have been made; but with reference to the sanitary state of the town generally, excepting those points, what is your opinion as to the improvements which may have taken place in the last ten or twelve years?—The improvements which have taken place have been much less than they ought to have been, considering the powers which the local authorities have had; and I consider the delay in adopting those improvements to arise from the anxiety to keep down direct expenditure in the rates. I consider it a mistaken economy, and that it has produced a considerable increase, instead of decrease, in the expenses of individual ratepayers.

9582. Have the improvements which have been made in the town been confined mainly to the one principal, and one or two side thoroughfares?—They have.

9583. With reference to the rest of the town, excluding those one or two localities, has there been any material improvement in the sanitary state, say, since Dr. Reid's visit in 1843?—There has not, and there cannot be any, until we have that which we ought to have had first of all, viz., a proper plan and survey of the borough, with gradients which will enable a correct system of sewerage to be commenced and carried out.

9584. But for practical purposes, the sanitary state of three-fourths of the town, including therein the whole of the worst districts, is very little better at this moment than it was at Dr. Reid's visit in 1843?—Those places, which have been improved, have been more than overbalanced by newly-erected and ill-conditioned blocks of buildings, which have been erected without regard to sanitary regulations.

9585. Then, taking the town as a whole, the sanitary state will not have materially improved?—Not materially.

9586. Local improvements have been made, but additional local nuisances have come into existence?—They have.

9587. And balancing one against the other, the town has very little reason to expect any greater immunity from disease now, than it might have expected in 1843?—Just so. I am aware that I am expressing an opinion in which I may not be supported by a great many persons; some persons think that I carry my sanitary views too far, because I carry them further than they do. It is, however, an opinion which I entertain very strongly; and it is confirmed by many years' observation. One great benefit has arisen by the application of the Public Health Act to Gateshead, and if no other benefit had arisen from it, it would have been a blessing to it; that is the prevention of the system of overcrowding lodging-houses.

9588. In respect of a certain limited number of common lodging-houses?—And in new houses also. No new house can now be built without a plan being deposited with the Local Board, and approved by them, and no new street can be laid down without that. We cannot have a repetition of these narrow courts and entries. I have avoided mentioning the names of these places, because it might have the effect of injuring the value of the property of individuals, and I am desirous not to do that.

Mr. WILLIAM HENRY SCHOREY, examined.

Mr. W. H. Schorey.

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9589. (*Chairman.*) You are superintendent of police in this borough?—I am.

9590. How long have you been so?—I have been inspector and superintendent nearly twelve years, superintendent for about ten.

9591. Are you also a native of the place?—No.

9592. You have become pretty well acquainted with it, however?—Yes, I knew it previously to that time.

9593. And I suppose more especially, perhaps, with the worst districts?—Yes, with the whole.

9594. You have heard the evidence which has been given with reference to the form of house construction which prevails here, and which no one disputes?—There cannot be two opinions about it.

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9595. The whole form of house construction, except in a few streets, is unfavourable to health?—I think so.

9596. You are aware of the condition of the town in respect of the domestic conveniences to which we have so often alluded?—Yes, there is not a public privy in the place.

9597. And what has been stated with reference to the private ones is that in the worst districts habitually there is one to twenty, thirty, or forty families, as in Mr. Scott's case?—It is so.

9598. And with regard to those which do exist, both privies and middens, they are frequently in a very improper state?—In a filthy condition. With regard to Leonard's Court, I knew it when it was entirely new, and then there were conveniences attached to those buildings. In the small courts there were middensteads and privies, but they became a perfect nuisance, and the people destroyed them. The people pulled them down one piece after another till there were no seats. Besides they were never emptied, and they were a greater nuisance than if they had not been there at all.

9599. (*Mr. Bateman.*) I suppose you find it pretty generally the case among that class of people, that they are better without them than with them almost?—Yes.

9600. (*Chairman.*) Unless they are kept in order for them; but the tearing down of these things implies wilful mischief?—(*Mr. Town Surveyor.*) They are not upheld by the owners of the property.—(*Mr. Schorey.*) They are dirty.

9601. (*Chairman to Mr. Schorey.*) That I can understand. They were not lighted at nights, I dare say?—No.

9602. You cannot expect a man to go in the dark into such a place the condition of which he does not know. You cannot surely expect an unlighted public privy to be in proper order?—These are private privies.

9603. They are not exactly public privies, but they are common privies used by a great number of tenants?—Yes.

9604. You can hardly then, under those circumstances, expect an unlighted one to be kept in proper order. But supposing you were to put Leonard's Court into decent order, and put a privy into the back yard of every house, so as to be common only to three or four tenants, and emptied it three or four times a year, what do you think would be the state of that property after two or three months?—I think, by giving these conveniences, and paving and draining, and making these places more comfortable, you would get a better class of tenants into them, and that the place would become more orderly altogether.

9605. Taking the tenants exactly as they are, supposing you went into Leonard's Court to-day, and ordered a privy and midden to be put into the yard of every single house, and in fact gave them those domestic conveniences which would enable them, if they were disposed to do so, to keep themselves clean, in what state do you think you would find those privies generally a month hence?—I think it would be some time before you could get the people really to make that use of them which they are intended for. I think in time you might induce them. These are not the people belonging to the place. Leonard's Court is inhabited very much by low Irish.

9606. Still they reckon among your population, and they die in epidemics, and their mortality is reckoned up against you. Would not you say that there is a considerable proportion of your poorer labouring classes whose habits are so bad, that of themselves they tend to encourage the virulence of epidemics?—No doubt about it.

9607. Do you think that your lower population here is worse than in Newcastle?—(*Mr. Town Clerk.*) There is a larger proportion of unskilled labourers, composed as I stated yesterday principally of Irish and Scotch, but with the exception of the larger proportion they are not worse in their character.

9608. (*To Mr. Town Clerk.*) Out of your population of 25,000 we computed that there might be close upon 20,000 of what you would call the lower classes?—Men who earn their livelihood by the sweat of their brow from day to day and from week to week.

9609. Which is a larger proportion than in Newcastle, where the shopkeepers' class and the middle class prevail more extensively?—That is so; because here we are the manufacturers, in Newcastle they are the merchants.

9610. (*Mr. Bateman.*) Do you mean to say, speaking of the artizans and labourers as a body, that there is a greater proportion of unskilled labour here than in Newcastle?—I think there is. I know that some of our large manufacturers complain of the want of house accommodation for their work-people on this side of the water, and that their men have to go into Newcastle to find houses and residences. I believe that those who do so go into Newcastle are principally the skilled artizans.

9611. (*Chairman.*) Who have higher wages?—Who have higher wages, and have more care for a good house. The Irish will pack in anywhere, and in any number that the room will hold; that I believe is the case.

9612. Then in fact a greater percentage of your labouring classes than of the labouring classes of Newcastle will be people whose personal habits will have operated unfavourably on the late mortality?—In my opinion that is so.

9613. (*To Mr. Schorey.*) With reference to matters of which we have heard from the Town Surveyor, as to paving and scavenage and the accumulations of refuse here and

there, would you wish to add anything to what he has stated?—No. I quite agree with what I have heard stated by Mr. Hall.

9614. You, however, in the discharge of your duties, have done pretty frequently what Mr. Hall has not had occasion to do; viz., you have gone into the tenements themselves?—Yes, from time to time.

9615. You have had occasion there to notice the condition of the houses, of the walls, roofs, ceilings, passages, staircases, and so on. Are there many districts in which you have had occasion to notice anything that you thought bad?—There are many districts, particularly in the lower part of the town, where if the people were ever so inclined to make themselves comfortable they could not do so, the houses being old and completely rotten; indeed they are not air-tight in any way.

9616. (*Mr. Bateman.*) Thoroughly dilapidated?—Completely so. The only way to repair them at all would be to pull them down altogether.

9617. (*Chairman.*) Have you seen damp here and there?—In a great many.

9618. Smelling offensively?—Many of them.

9619. Sadly in want of whitewashing and purifying, I suppose?—Very much. The High Level Bridge was a great boon when it came here, for it swept away the most densely populated part of Pipewellgate.

9620. (*Mr. Bateman.*) But had it the effect at the same time of overcrowding the remainder?—No; I think not.

9621. (*Chairman.*) Just for the time, I suppose, when it brought a good number of railway labourers and so on into the town, you must have been more overcrowded than usual?—Yes.

9622. But afterwards, when things had settled down to their ordinary condition, you do not think that the overcrowding has been greater?—No. I consider that that and a large bonded warehouse opposite Bertram's Buildings were the worst parts.

9623. On the spot where you now have a large bonded warehouse you had some years ago a set of old buildings of the worst description?—Of the very worst description.

9624. Is the guano warehouse there offensive?—The smell is very bad indeed.

9625. Just across the road we had eight cholera deaths in Bertram's Buildings, just the other side of Hillgate?—The smell is enough to strike you down.

9626. Bertram's Buildings itself, however, is very bad, is it not?—Very bad. There is only one tenant now in that large stack of buildings.

9627. The people have got frightened. Is the landlord proceeding to do anything to improve it?—Bertram's Buildings belongs to the churchwardens and overseers; it is Church property. It was a great stack of old property.

(*Mr. Town Surveyor.*) I may state that I have brought the subject of the bonded warehouse and the place for guano under the notice of the Board two or three times.

9628. (*To Mr. Schorey.*) Then have you anything to alter in the evidence of the other witnesses as to the irremediably bad condition of certain parts, and the very bad condition of a very large proportion of the habitations of the labouring classes here?—No.

9629. Some of them you said just now, I think, seemed to you so bad that they could not be improved without being pulled down and rebuilt altogether?—They could not.

9630. And many others are very bad, although perhaps not hopelessly so?—They are.

9631. (*Mr. Bateman.*) In comparing one part of the old town with another, do you consider that Bertram's Buildings is probably the worst spot in the old town?—No; I would say not by any means; because the buildings that I am speaking of, belonging to the churchwardens, are new buildings.

9632. (*Chairman.*) They are solid?—Yes; but then they are built against a bank. They will be about, I should say, two stories into the bank, against the bankside.

9633. That is to say the bank will come up the full height of the first story, and part or the whole of the second?—I should say the second altogether nearly.

(*Mr. Town Surveyor.*) There is a slight opening made at the back at intervals, but it does not extend the whole length of the back.

9634. (*To Mr. Town Surveyor.*) What width would that opening be?—Not more than five or six feet; indeed it is merely like a well.

(*Mr. Schorey.*) And there is a slope there.

9635. (*To Mr. Schorey.*) So that anything washed away by the rain would be brought down, if not into immediate contact, yet close to these very walls?—Yes.

9636. (*Mr. Bateman.*) With reference to all the circumstances connected with the spot, do you think there is a worse place than Bertram's Buildings in the old part of the town, or one more unlikely to have a healthy population?—I think there is. There is Pitman's Entry in Pipewellgate.

9637. (*Chairman.*) As to Price's Buildings and Dunn's Buildings, are they as bad as Bertram's Buildings or worse?—I should say they are equally as bad.

9638. And the houses are old there, are they not?—No.

9639. Taking Veatch's Buildings and Scott's Buildings, are they new?—They are quite new.

9640. Then Pitman's Entry and towards Thompson's Stairs and thereabouts, you think is a very bad place?—It is filthy; there is some of the worst property in the town jus there.

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9641. (*Mr. Bateman.*) There is a tripe shop too?—There is a tripe shop just at the passage door.

9642. (*Chairman.*) Bluebell Entry is bad too?—Yes; Bluebell Entry is entirely lodging-houses.

9643. As superintendent of police, you have had the carrying out of the regulations for the common lodging-houses, have you not?—Yes; I was appointed inspector on the 29th of October 1851.

9644. And the regulations for the management of the lodging-houses were issued on the 3d of March 1852?—Yes.

9645. Since that time the regulations and the statute have both of them regularly and systematically been put in force?—They have.

9646. We have had evidence from the medical officer, Mr. Wilson, that the benefits and advantages of your surveillance under the Act have been visible to the eye in many parts?—At that time we had thirty-one lodging-houses, and in consequence of the regulations we have now only eighteen; and I believe this week I shall get rid of another again. I think we have driven some of them within these few years over to the other side of the water.

9647. Have you seen the benefits?—Very greatly indeed. During this last epidemic there were no places that were more healthy than the lodging-houses. There was very little sickness indeed in them.

9648. And yet these lodging-houses, I believe, are situated many of them in what you might otherwise call the very worst portions of the town?—They are in the worst situations that can possibly be.

9649. Such as Bluebell Entry which goes out of Pipewellgate, a blind *cul de sac* with other blind *cul de sacs* back to back with it on both sides?—And the end of the entry abutting right against the bank.

9650. You would hardly doubt that a similar system of surveillance applied to the whole of Pipewellgate and the whole of Hillgate, would effect considerable improvement in them also, although it might never bring those districts into a really proper state?—I think it would have a very beneficial effect.

9651. Is Bluebell Entry more favourably situated for instance than any other entry along Pipewellgate?—No; I should say not so well as many others; because it is not a thoroughfare at all.

9652. In fact in some points this entry is rather inferior to some of the other entries in Pipewellgate?—I think so.

9653. Supposing the Local Board of Health should have had the power under any statute to erect model lodging-houses for the accommodation of the poorer classes, would you consider that it would have been desirable for them to exercise that power?—I can scarcely express an opinion upon that. There would be a very general disinclination to go to a model lodging-house, I think.

9654. Do you think that the other inhabitants of the town who do not generally go to a public lodging-house, would have been glad to avail themselves of any better tenements that might have been provided for them?—I think they would.

9655. With reference to slaughter-houses and offensive trades, have you had anything to do with carrying out the powers of the Local Board?—Yes; we have brought up several butchers for infringements of the Public Health Act.

9656. Those regulations of the 3d of March 1852 have been put in force?—They have, both by Mr. Hall and by ourselves.

9657. Have you seen any benefit resulting from the enforcement?—Very great.

9658. What improvement in respect of its sanitary state have you seen in Pipewellgate, say in the ten years that you have been here. I mean always excepting the operations of the railway?—Very little indeed. It is almost impossible to make much improvement.

9659. Do you think that that deters people from beginning it, that it seems to be throwing money away to do anything to it until they pull it down?—I think it is the case. The town generally has certainly improved within that time.

9660. Is there anything which you would like to add to the evidence which you have already given?—No, I do not know that there is.

9661. Have you any opinion upon the question of the water?—We have at all times, ever since the High Level Bridge was formed, had nothing but Whittle Dean water, and with about two exceptions we have always thought it very good indeed; there were two occasions last summer and the summer before when the water was very bad indeed; it had the most abominable smell, so much so that we sent for our water for a day or two up to the well.

9662. You mean from this house, the Town Hall?—Yes.

9663. Are you supplied in this house ordinarily from Whittle Dean?—Yes.

9664. Have you a cistern?—Yes; the cistern only supplies the closet.

9665. You drew the water of which you are speaking then direct from the pipe?—Direct from the pipe.

9666. And both in 1853 and in 1852 you noticed an offensive smell as well as a bad taste about the water?—Yes, just for a short time, for a few days.

9667. (*Mr. Bateman.*) More than once in the course of the year?—No, I cannot say that it was.

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9668. (*To Mr. Main.*) If I recollect rightly, in 1852 you were always abundantly provided with water?—We were. I think perhaps Mr. Schorey alludes to the times when we were cutting the weeds here; it would not be more than a day each time.

(*Mr. Schorey.*) It was not that; it had a very nasty smell.

9669. (*Mr. Bateman to Mr. Main.*) Is Gateshead supplied entirely from the reservoir on the hill or in any way independently of it?—It is supplied entirely from the Arthur's Hill reservoir from Newcastle, with the exception of the Windmill Hill district and Bensham which lies above the level of that.

9670. Mr. Schorey here would receive it from the Arthur's Hill reservoir?—Yes.

9671. Therefore your explanation of the circumstances would not apply to him?—Not in this house.

9672. (*Chairman.*) May there not be something in the condition of the pipes?—There might be some local cause of that sort. There was a case occurred the other day in the high districts, where a gentleman came down to the office to us and said the water smelt; we examined it and we found that it arose from a leak, that the pipe had got empty, and we fancied, from the continual soakage of gas in the immediate neighbourhood of that pipe, that the gas might possibly have soaked into the pipe.

9673. If the same thing were to happen in any very nasty sewage-sodden portions of the soil of Newcastle, you might be enabled to account for one or two other statements?—It might be so, and unless we heard of it at the time we could not say whether it was so or not.

9674. You said I think in Newcastle, that, as far as you knew, you had taken up all the old wooden pipes?—We have taken them all up.

9675. Still in the very unsatisfactory state of the soil in a great part of Newcastle an accident of that kind might happen which would render one tap or the tap of a small district very offensive?—It might.

9676. (*Mr. Bateman.*) Another cause very probably would be the extent to which the water was drawn off. If water is allowed to be in a pipe, without being drawn off at all for some time, and is then drawn, it will be offensive?—Yes, we find at the terminating place of pipes frequent complaints.

9677. You frequently have to cleanse your pipes and draw the water off?—Yes.

(*Mr. Schorey.*) It is an immense improvement on the old water company.

9678. (*Chairman to Mr. Schorey.*) How do you find the water supply to the poor people in Hillgate and Pipewellgate, and so on?—I think they are very well supplied in those places.

9679. (*Mr. Bateman.*) That is to say there is water if they will go for it?—Yes; Mr. Hall, I believe, has a tabular statement.

(*Mr. Town Surveyor.*) The tabular statement gives the number of houses and the number of people supplied with water.

(*Mr. Main.*) We supply 1,100 of the population.

9680. (*Chairman.*) You supply about 19,000 out of the entire 25,000 in the whole town?—Yes.

9681. Then Pipewellgate, if you supply only 1,100 out of 2,000, which is a little more than half, would be about your worst district, perhaps?—I think perhaps it is.

9682. (*To Mr. Schorey.*) You remember the facts to which I alluded yesterday, and which are stated in Mr. Rawlinson's report, namely, as to several wells and springs, which were very good wells and springs ten and fifteen years ago, having been deranged and spoilt in different ways, some by the railway operations, some by the sinking of shafts in the neighbourhood, and so on?—Yes.

9683 That is the fact?—Yes, all along these banks there were excellent wells, where the people used to get their water; and in consequence of the foundations of the High Level Bridge and Mr. Easton working the colliery, a great many of these have been dried up; indeed, we lost our supply entirely here in consequence of the High Level Bridge.

9684. On the whole the people are pretty well supplied with water?—I think very well indeed.

(*Mr. Town Surveyor.*) On the south side of Pipewellgate there are 131 houses altogether. Eleven houses are separately supplied with water, and 120 houses by several stand pipes.

9685. (*Mr. Bateman to Mr. Main.*) When you say that 1,100 people are supplied with water, those are the estimated number of the families which you supply?—Counting five to a family.

9686. I suppose you have very little doubt that the remainder, supposing that there is an equal number, get the water by stealing it?—I have not the slightest doubt of it.

9687. So that your nominal 1,100 will be really about 2,000?—Yes; they confess to stealing, though we have never prosecuted them.

(*Mr. Schorey.*) There is a great quantity of water taken from the wells that are in existence still, for domestic purposes.

9688. (*Chairman.*) For washing?—For washing. There are several along the banks.

(*Mr. Main.*) I might mention the case of Leonard's Court, which was one of the worst places in Gateshead. We departed from our principle there of having an in-door supply, and we have put up a common stand pipe for the supply of the whole court; but the landlord will not pay anything for the water, and last spring we were obliged to take it

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off, we were getting nothing from it; but the people were so badly off that Mr. Hall came over to the water office, and asked us to put it on as a matter of charity to the people, on the 13th of September I think.

(*Mr. Hall.*) Yes, in the cholera time.

(*Mr. Main.*) We have put it on and supplied it from that time to this, although we do not expect to get anything from it.

William Kell, Esq. and William Hall, Esq.

WILLIAM KELL, Esq., and WILLIAM HALL, Esq., further examined.

9689. (*Mr. Main to Mr. Hall.*) I understand you yesterday to have stated generally, that the water smelt during the time of the cholera. Was the water that you smelt drawn fresh from the tap?—I stated that the water smelt. I did not mean during the whole period when cholera visited this neighbourhood, but one or two or it might be three or four times, when the quality of the water came under my observation. I am certain it did smell at times.

9690. (*Chairman.*) On those occasions can you say whether it was drawn direct from the tap?—Yes; and I allude more particularly to one occasion of water drawn from the tap in this house. The servant one day brought the water to me, and it was in an exceedingly muddy state, effervescent and almost white; on placing it upon the table, in the course of a minute or so it suddenly became clear, and there was a very heavy deposit in the glass.

9691. Do you know whether it had been drawn recently?—The servant brought it to me as such, and from curiosity I went to the tap myself to try it over again.

9692. Had you the same result in the water which you drew yourself?—Yes, exactly.

9693. It was full of bubbles and effervescent as it were?—Yes; it was nearly white. The deposit had the appearance of chalk or something like that.

9694. Not merely on the top, but infused throughout the whole?—Yes, and it suddenly became purified, as if there had been the application of something to precipitate it.

9695. (*Mr. Bateman.*) On first drawing the water, it had this milky effervescent appearance?—Yes.

9696. And on being allowed to stand for a minute or two, this all went off, and the water became clear?—Yes.

9697. (*Chairman.*) After it had become clear, did it still retain the same smell?—Yes; it retained a slight smell.

9698. (*Mr. Main.*) I understand that the water which you smelt had been in your bedroom all night?—I am in the habit of having water in my bedroom in a bottle, and, to the best of my recollection, that smelt too.

9699. (*Chairman.*) On this occasion, however, you know that it had an offensive smell at the moment you drew it?—Yes.

9700. And with regard to the other cases which you specifically remember now?—I could not say under what circumstances exactly these were drawn from the pipe.

9701. (*Mr. Main.*) As to the state of effervescence, it will be perfectly known to the Commissioners that that will proceed from the air mixed with the water, which passes off in much less than a minute, in a second, on account of the high pressure at which the water is sent.

9702. (*Chairman to Mr. Main.*) That, however, would not account for the smell, nor yet for the deposit?—No.

9703. (*Mr. Hall.*) Can Mr. Main state what may be the revenue from Gateshead to the Whittle Dean Water Company?—I cannot; I have not gone into it exactly.

9704. (*Chairman.*) Your whole revenue is several thousands?—Our whole revenue is 13,700*l*.

9705. Can you make a rough guess of what it is in Gateshead?—I will furnish you exactly with it, if you wish.

9706. We have here something like 1000 taps, as compared with 6000 in Newcastle; would it be about a seventh of the whole?—No; the revenue from Gateshead is nothing like in proportion to what we get from Newcastle.

9707. Though there may be a seventh of your whole taps in Gateshead you do not derive a seventh of your whole revenue from Gateshead?—Nothing like it.

9708. (*To Mr. Hall.*) I think you told us yesterday, that, in your first report on the 25th of November 1851, you represented to the Local Board of Health the necessity for making a complete map or survey of the town, with a view to sewerage and drainage?—Yes.

9709. Will you refer to your fifth report on the 2d of March 1852, and see whether you then recurred to the subject?—Yes.

9710. There are some remarks there which are very pertinent, if you will be good enough to read them?—"The various Commissions that have, during the last few years, "been appointed by Government to inquire into the present sanitary condition of large "towns and populous districts, with a view of improving them, have shown in the clearest "and most distinct manner the necessity of providing such surveys, before attempting to "lay out any system of sewerage or even any part of any system, in order to prevent that

" waste of money, which hitherto has attended the construction of sewers, that in too many " cases serve only to augment the evils which they were constructed to avert. It is " universally admitted, that without an efficient system of sewerage, no town, however " favoured by nature in respect to site, can enjoy that position with regard to the health of " its inhabitants, which it otherwise might attain when science is judiciously employed. " To unprofessional persons it may appear that when a town is, generally speaking, so " favourably situated as Gateshead for the purposes of drainage, nothing can be easier than " to lay down a sewer wherever it may be required; but for an engineer to do so detailed " plans and levels are indispensable, in order to enable him to devise the various parts at " the least cost, and in such a manner that they may hereafter be combined, and form an " efficient whole."

9710. Did you at the end of that same report again draw attention to the necessity of such a map or survey, in connection with the question of approving a plan for certain new houses, which had been submitted to you?—Yes.

9711. In your sixth report of the 5th of April 1852, did you again revert to the question of a survey of the borough?—Yes, according to a minute which was made, owing to the subject having been brought before them in a former report.

9712. In your seventh report on the 30th of April you again reverted to the question, and stated that the whole could be completed at a cost of 450*l*?—Yes.

9713. And you have taken every occasion of impressing upon the Local Board the necessity for such a plan of the borough, in order to enable you to undertake works of sewerage or drainage in a proper manner?—I have.

9714. Reverting to the first report of the 25th of November, 1851, were any orders there given to you in reference to flagging and asphalting footways?—Yes.

9715. You began at that time to enforce those powers of paving and improving footways?—Yes.

9716. In your second report of the 3d of December, 1851, you report upon the plan of a new house which had been submitted to you?—Yes.

9717. Which had been modified from the original plan according to a report by you?—Yes.

9718. In respect of what was that modification introduced?—It was with respect to the position of the privy, in regard to its proximity to the house, and to prevent the filtration of matter from thence into the walls of the house.

9719. It had been originally proposed to build a privy close alongside the wall of the house?—Yes; that is a very common occurrence in nearly every plan.

9720. Without taking you in detail through the something like 100 reports on plans of houses which I have read in those books of yours, I will simply ask you whether you have not frequently advised the Local Board to require modifications to be made in the plans submitted to them before sanctioning those plans?—I have.

9721. Among the most frequent of your suggestions seems to have been one with respect to putting in water-closets instead of privies, wherever water-closets were possible?—Yes.

9722. And with respect to the proper position and construction of privies and cesspools wherever they were unavoidable?—Yes.

9723. You have also on several occasions reported unfavourably respecting plans of houses, in which it was proposed to carry on the sewerage of those houses by shafts into the old coal workings?—I have.

9724. And wherever any better means of sewerage has been possible, you have disapproved altogether of that kind of sewerage?—I have in a great many cases.

9725. I think also in that second report of the 3d of December, 1851, and again in almost every one of the twenty or twenty-five reports that you have made, there is some evidence of the endeavours of yourself and of the Local Board to carry out the improvement of the footways in paving and flagging, and so on?—Yes.

9726. In that second report also there is an allusion to a nuisance from an open sewer in Claremont Place?—Yes.

9727. As to which orders were given to the occupiers of the adjacent properties to abate the nuisance?—Yes

9728. Turn to the eighth report of the 1st of June, 1852, and see if it appears from thence that the occupiers of the adjacent properties had neglected to carry out the orders given to them, and that in their default the Local Board had taken upon themselves the execution of the requisite works, and assessed the expense of it upon the occupiers?—Yes.

9729. It was under the powers of the 58th section of the Act?—This was where there was a dispute between the Local Board and the owners of the property. There was some flagging done, which had not been mentioned in the notice served on the owners and occupiers of property, and there arose a dispute between the Local Board and them, the latter refusing to pay for the expense of it. The question came before the magistrates, and it was given in favour of the owners of the property, and the cost of this flagging, which amounted I think to somewhere about 30*l*., had to be paid out of the rates.

9730. But this is an instance of your having enforced the 58th section, and having ordered offensive ditches and so on to be cleansed and covered and put in order?—Yes.

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(*Mr. Clephan.*) It did not imply any opposition on the part of the owners of the property; it is a common practice, I believe, not to comply, because they prefer that Mr. Hall should do it.

9731. (*Chairman to Mr. Hall.*) Referring to your fourth report, of the 30th of January 1852, is there an allusion made there to the nuisance arising from an old dry well which had been converted into a cesspool, and were measures taken under the powers of the Public Health Act for abating that nuisance?—Yes.

9732. I think there are several such allusions to nuisances arising in respect of wells, or the contamination of wells throughout these reports; in almost all which cases you seem to have interfered effectually to abate the nuisance?—Yes, we have been pretty successful; indeed, in every case where a complaint was made to me, I always reported it, so far as I was able, to the Local Board, and they always took measures accordingly.

9733. On the 2d of March 1852, in your fifth report, there is a report, showing that you had already been directed to make inquiries, with a view to the actual construction of baths and washhouses?—Yes.

9734. From that time, through all the subsequent reports, there are occasional allusions, showing that the matter was continually before the Local Board of Health?—Yes.

9735. And it has now been literally carried out, the baths being already pretty well constructed?—Yes.

9736. On the 10th of March, at a meeting of the Council, were orders given to you to serve notices under the 69th section of the Public Health Act, upon certain parties, to compel the levelling, paving, flagging, and channelling of certain streets and parts of the town?—Yes.

9737. Along Hillgate and Pipewellgate?—Along a continuation of Hillgate and a continuation of Pipewellgate.

9738. Do you remember what was done under those notices?—These notices were served, but the works were not carried out by the board. I laid an estimate before them, of the expense of it, in accordance with that particular clause of the Act, but nothing was done; they stand in the same position to this very day.

9739. Can you give any explanation why that was?—I believe the expense was the reason.

9740. It would have been no expense to the Local Board to compel the owners of the adjacent properties to do their duty to the public?—They seemed afraid of getting into litigation with the owners of the property, and perhaps one difficulty was the first outlay of money for the purpose. That is my own opinion of the matter.

9741. You were not, probably, present at the discussions?—Yes, I was.

9742. It was an instance, I take it, where the levelling and paving was loudly called for by the necessities of the case?—Yes. There is great traffic along these streets, and in winter they are almost impassable. Since this date, I again brought the subject before them as regards Hillgate.

9743. But nothing has been done under any of your suggestions as yet?—Nothing.

9744. (*Mr. Clephan.*) Was that the occasion on which the owners of the works complained that their men were made ill by the state of the road?—Yes, I believe it was so. I may state that a footpath has been laid along Hillgate; and that, I think, was done on the representations of a deputation of the owners which waited on the board, complaining of the injury done to the health of their workmen.

9745. (*Chairman.*) In the sixth report, of the 5th of April 1852, did you lay before the Local Board, plans, and sections, and estimates, with a view to compelling the draining and paving of a private street, Grahamsley Street, under the powers of the 69th section?—Yes.

9746. You also afterwards gave notices to the owners of the property?—Yes.

9747. They did not think it convenient to do the works themselves?—No, they did not.

9748. The Local Board, or you, as the officer of the Local Board, afterwards undertook the execution of those works?—Yes.

9749. And when done, assessed the expense upon the separate occupiers?—Yes.

9750. I need hardly ask you, whether that has been a benefit to the locality?—Very great indeed.

9751. Is a great part of that street built upon rubbish heaped into an old excavation?—Yes.

9752. Then it would be liable to the same kind of objection as Victoria Street in that respect?—Yes.

9753. Was this sewering and so on done previously to the outbreak of cholera?—Yes.

9754. Then probably to these improvements in sewering, &c., having been applied to this street, situated in some respects very much as Victoria Street, may be attributed in some measure its comparative immunity from cholera?—Yes. There have been only three cases in it.

9755. Referring to your 15th report, of the 20th of December 1852, you again made a statement of the expense of executing all those works in Grahamsley Street; and you

also made a computation there as to the expense to each house per week for drainage only; will you be kind enough to state what it was?—Not quite three farthings addition to the weekly rent of the house. That is for drainage only.

9756. What was the cost per house per week for the whole of these sanitary works, the beneficial effect of which has been so obvious?—A little more than a penny farthing per week.

9757. Do you in your sixth report, of the 5th of April, allude to a complaint which had been made by a Mr. Philip Smith, with reference to a nuisance arising from certain premises and ashpits adjoining his premises?—Yes.

9758. What did you recommend should be done?—I recommended that waterclosets should be substituted instead of the privies, or else that the privies be removed and a drain be laid from the yard into the main sewer.

9759. Do you remember what was done under that?—Yes; a drain was laid from the yard into the main sewer, and other remedies were applied. The ashpits were entirely altered with a view to remedy the evil; and I believe that it has been remedied. I am not aware of any complaint since; but a better remedy would have been the construction of waterclosets.

9760. That was an instance of the enforcement of the 49th as well as of the 54th section?—Yes.

9761. Then there was also an order issued for the removal of piggeries?—Yes. The Board have done a great deal of good with regard to that.

9762. There are many other instances in these reports of yours of such orders; and those orders have been habitually carried out?—Yes. I should think at least 150 pigs have been removed from Pipewellgate and Hillgate, and some of the very worst localities of the town.

9763. With reference to this 69th section generally, you have exercised its powers, as shown by these reports, in several instances?—Yes; in a few instances; but not so many as there ought to have been.

9764. Still I have noticed some ten or a dozen cases in which at all events you recommended the exercise of those powers?—Yes.

9765. In how many of those cases, in which you recommended the exercise of such powers, have those powers actually been exercised, do you think?—Perhaps in four or five, or it may be six.

9766. Not more than half the number of instances?—I do not believe that we have done anything more than Grahamsley Street, Ellison Street West, Claremont Place, and Mirk Lane, that is under the 69th section. There has been a good deal done with regard to removing nuisances and so on.

9767. Then on the 5th of May 1852 you were ordered by the Council to report on the sewerage of Ravensworth Terrace?—Yes.

9768. Was that private property?—Private property. And on Wednesday last I had again to call to the attention of the Board to it, owing to a complaint of the want of drainage in that district; but it is one of those places where nothing can be done until a general system of drainage is decided on.

9769. You did on the 1st of June 1852 report upon the matter; but owing to the circumstances of the case it has been impossible to do anything for want of a generally arranged system of sewerage?—Yes. A complaint was made about Ravensworth Terrace, owing to an offensive open gutter. That was remedied; but other works are required for the proper drainage of the place.

9770. You put in force in respect of Ravensworth Terrace the powers of the 58th section, empowering the Local Board to get filthy ponds, or ditches, or sewers drained, cleansed, and covered?—It was very slight indeed. It was done out of the rates during the cholera time. I took upon myself the reponsibility of doing that.

9771. You did not enforce the 58th section; but the Local Board spent their own money for the purpose?—Yes. The expense of serving notices and one thing or another would have been more than the cost of what was required.

9772. About the time of your eighth report you were ordered to report on the complaint of Mr. Bell, as to a nuisance arising from a fellmongery on the south side of Hillgate, and immediately adjoining the street?— Yes.

9773. Which had been newly established there, I think?—Yes, it was about to be established when that letter was sent in.

9774. In your tenth report, presented on the 1st of July 1852, did you report with reference to that nuisance?—I did.

9775. What did you report?—"With regard to the fellmongery in Hillgate, I have "inspected the premises where it is intended to carry on the business, and it does not "appear to me to be possible to carry on a business of this description in such an "overcrowded and confined locality without causing a nuisance."

9776. Was there also another slaughter-house or fellmongery reported on by you at the same time?—Yes.

9777. What report did you make on that subject?—I reported that "The objections to "Joseph Singleton's application being granted are not so great, as the premises have a "river frontage, and there are not many dwelling-houses in the immediate vicinity. "Notwithstanding this, I would recommend the Board not to give their consent to either, "as I conceive such business ought to be entirely removed from the precinctsof a town."

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9778. What was done?—They both received a license upon conditions.

9779. (*To Mr. Kell.*) Will you be good enough to state what were the conditions under which some gentlemen of the name of Wilson were allowed to establish a new fellmongery in an already very populous and overcrowded district?—At a meeting of the council and Local Board of Health held on the 7th of July 1852, this document was received:—"Whereas James Wilson the younger, of Gateshead, fellmonger, hath applied "to be allowed to establish the business of a fellmonger within the corporate district of "this Local Board of Health, on premises situate on the south side of Hillgate and "belonging to the mortgagees of Messrs. Bertram and Spencer; and the place having "been inspected by the surveyor and inspector, and also by the Public Health Committee "of this Local Board of Health, and approved of by them,"—

9780. (*To Mr. Hall.*) Did you approve of it?—No.

(*Mr. Kell.*) It is approved of by the committee, not by the surveyor. The word "also" was purposely inserted:—"It is ordered and directed, and the said Local Board "of Health do hereby consent to the said James Wilson the younger commencing and "carrying on the said business within the said corporate district, on the premises and in "the place aforesaid, upon these express conditions—that he, the said James Wilson the "younger, shall provide a constant supply of water for purifying the same, and a drain "or sewer to convey away the same water; and that he shall not establish or carry on "the business or manufacture of a blood boiler, bone boiler, slaughterer of cattle, horses, "or other animals, soap boiler, tallow melter, tripe boiler, artificial manure manufacturer, "or other noxious or offensive trade or business on the said premises; and that he the "said James Wilson the younger and his successors, occupiers for the time being of the "said premises, shall abide by all byelaws now or hereafter to be made and published by "the said Local Board in any wise relating to the said business of a fellmonger. And it "is also ordered and directed that, in order that the said James Wilson the younger may "be enabled to carry out these conditions, he shall have leave and license, and this Local "Board of Health do hereby grant such license, to make or branch a drain or drains from "his said fellmongery into, and to communicate with the public sewer in Hillgate "aforesaid, upon condition that such drain or drains be formed to the satisfaction of the "surveyor of this Local Board, and that no steam or boiling water from a steam engine "shall be issued through any such branch drain or drains; and also to take up the "pavement of that portion of the street along which the pipes for the conveyance of "water to the said premises will run for that purpose."

9781. (*Mr. Bateman to Mr. Hall.*) Is that the establishment which we saw in our perambulations?—Yes.

(*Mr. Clephan.*) There is one house adjacent, a remarkably clean house, the family were remarkably clean, and the animal matter was coming through the walls in a stream most offensively.

9782. (*Chairman to Mr. Hall.*) In your 25th report, presented on the 24th of October 1853, did you make any further report with reference to that fellmongery carried on by Mr. Wilson?—Yes.

9783. Will you be good enough to read what you there stated?—"The fellmongery "carried on by Mr. Wilson in Hillgate is and has been a constant source of nuisance "ever since it was established."

9784. Did you at the same time make any further recommendations and suggestions to the Local Board with reference to that fellmongery?—Yes.

9785. Was anything done under those suggestions?—The license was withdrawn.

9786. On the 24th of October 1853?—Yes, about that time.

9787. That was immediately in or after the epidemic?—(*Mr. Haggie.*) It was after the epidemic.

9788. (*To Mr. Hall.*) But, according to your report up to that time, that fellmongery was, and had been, a constant cause of nuisance ever since it had been established?—Yes; my opinion is that such a business as that ought never to be allowed in that locality; it cannot be otherwise than a nuisance.

9789. Do you think it had been as little of a nuisance as such a fellmongery in such a place could well be?—Yes; Mr. Wilson exerted himself, and took, I believe, every means that he possibly could to reduce the cause of complaint. I may also state, that last Wednesday another order was made by the Local Board of Health on my certificate; and I believe application will be made next Tuesday with regard to bringing the matter before the magistrates.

9790. On the 7th of March 1854 you again certified to this effect, "That the manu- "factory, building, or place of business carried on by Mr. James Wilson on the south side "of Hillgate within the borough of Gateshead is a nuisance and injurious to the "health of the inhabitants?"—Yes; I may state that Mr. Wilson ascribed the nuisance to the want of a proper drain, owing to the drain which was laid being defective; and the board, I believe, will give him license to make a drain from the fellmongery into this sewer which is constructed.

(*Mr. Kell.*) I find on reference to the minutes of the council and Local Board of Health, that on the 26th of October 1853 the license of the 7th of July 1852, which I have just read, was rescinded.

9791. (*Chairman to Mr. Kell.*) That was after the epidemic had ceased?—After the epidemic; "and the consent or license thereby or otherwise given by this Local Board of "Health to the commencement and establishment of the business of a fellmonger on the "premises therein mentioned is hereby withdrawn."

9792. Was it during the continuance of the epidemic that that great quantity of wool escaped from the fellmongery and choked up the drain?—(*Mr. Hall.*) No, it was previous to the epidemic.

9793. (*To Mr. Hall.*) And you had to open the drain and to get out the solid mass of wool which was therein?—Yes.

(*Mr. Kell.*) If it is not irregular, I should state that the withdrawal of the license was upon this report of the Public Health Committee joined with that of the surveyer presented at the same meeting. "Your committee are of opinion that the carrying on the "business of a fellmonger in the premises licensed to Mr. Wilson cannot be continued "without prejudice to the public health; and that as Mr. Wilson has done everything in "his power to reduce the nuisance and annoyance as much as possible without being able "to abate them, the license to him should be withdrawn."

9794. (*Chairman.*) That is what Mr. Town Surveyor originally reported, but the Local Board of Health would not believe him the first time?—(*Mr. Hall.*) This is the letter addressed to Messrs. James Wilson and Sons, Hillgate. "Gentlemen, I beg to acquaint "you that the sewer which carries off the water from your fellmongery in Hillgate became "completely choked up on Monday evening by the wool escaping with the water. The "water having thus no means of escape forced the joints of the sewer and lodged itself "in and around the foundations of very insecurely built houses. We were, therefore, "compelled to open up the street and break into the sewer, from which were taken out "from two to three barrowfulls of wool, which had formed itself into a hard mass. As I "cannot answer for the consequences, should we be again obliged to disturb the work in "such dangerous ground, and as the same thing has occurred once before, I must request "you to take immediate steps to prevent any wool escaping with the water, and not to "discharge the water until sufficient alteration has been made for this purpose."

9795. That was written by you to the owners of this fellmongery on the 27th of October 1853?—Yes.

9796. In the same 10th report there are allusions made by you to nuisances arising from the stoppage of house drains and from middens?—Yes.

9797. Were those nuisances abated?—Yes, both of them.

9798. And in these reports there are allusions, I think, to several other nuisances of the same kind?—Yes.

9799. Were they generally abated?—Yes; wherever they could be abated under the peculiar circumstances under which they were placed.

9800. Did you also in that report submit to the notice of the Local Board the names of certain persons who had endeavoured to evade the Public Health Act by not giving notice to the board of their intentions to build?—Yes.

9801. And the board interfered to compel them, and in fact to carry out the powers of the Public Health Act with reference to that point?—Yes. If I recollect rightly, in consequence of representations coming before the board, that several parties were evading the Public Health Act, in not submitting plans and particulars of the houses which they were about to build, a public notice was issued with a view to compelling parties to do so.

9802. About that time was there a standing order of the Local Board issued, enabling the surveyor to proceed more rapidly and more efficiently under the powers of sections 49 and 53, with reference to the approval of the plans of certain houses?—Yes. Owing to the board not meeting oftener than about once a month, it was found a great inconvenience to builders, who submitted plans;—probably they would have to wait upwards of a month, in order to receive the sanction of the board, and therefore this standing order was made, that, as soon as I, the surveyor to the board, was satisfied with the plan, they could proceed at once; that I could give them leave upon my own responsibility.

9803. Was there also a standing order to the effect that the town surveyor should have authority to inspect nuisances and serve the requisite notices under section 54, providing that all drains, water-closets, privies and so on, should be kept in such a manner as not to be a nuisance?—Yes.

9804. I see in the 12th report, of the 31st of August 1852, you recommended that four owners of houses in Grahamsley Street should be served with notices to provide a supply of water under section 76?—Yes.

9805. What was done in that respect?—On notice being served to the occupiers of the property, they got a supply of water.

9806. I see in these reports of yours that you must have recommended some scores of water-closets to be erected; how many do you think have been erected in consequence of your recommendations?—There have been a good many erected in the High Street, that is, where they could be introduced.

9807. In the same 12th report, you report upon the matter of a cellar dwelling, do you not?—Yes.

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9808. Can you remember what was done, under the 67th clause in the Public Health Act, with reference to the occupation of that cellar?—Yes, the notice was carried out, and a person in Grahamsley Street, who was living in a cellar, was compelled to leave; and it is now empty, I think.

9809. In the 13th report, on the 4th of October 1852, did you make several statements with reference to slaughter-houses?—Yes, I stated: "In the absence of premises provided "for the accommodation of the whole borough, it appears to me that this slaughter-house "is not such as to call for the special interference of the board." However, on consideration of the subject, it appeared to the board that it did require interference, and it was not allowed to be used afterwards; no license was granted.

9810. Did you more than once in the course of these reports suggest to the Local Board the propriety, and to a certain extent the economy, of providing public slaughter-houses?—Yes, abbatoirs. I do not know anything that could confer a greater benefit upon the town.

9811. Those recommendations have not been carried out yet?—No.

9812. But the byelaws respecting private slaughter-houses have been fairly and properly carried out?—Yes, as far as they could be.

9813. Did you also, with reference to another slaughter-house then newly established, suggest to the board that the powers of the 64th section of the Public Health Act, which requires that the consent of the Local Board should be obtained before establishing any new slaughter-house, should be carried out? Yes.

9814. And those powers also were enforced?—Yes.

9815. I see a report by you on the 4th of October 1852, in consequence of an order given to you on the 7th of January with reference to the sewering, levelling, paving, flagging, and channelling of that notorious locality, Leonard's Court?—Yes.

9816. Will you state what was done?—Yes; I presented plans and sections, and an estimate of the cost of the requisite works.

9817. Under the 69th section?—Under the 69th section.

9818. The proprietors of the property having neglected to do what was ordered by the notices that had previously been served upon them?—Yes.

9819. Will you state what was done in consequence?—As will be perceived by this report, that I did not advise the board to carry out this scheme. It was then intended that the drainage of Leonard's Court should be carried into the main sewer in High Street. I did not recommend the board to do so, and indeed this subject gave rise to the survey of the eastern district. I recommended that a main sewer be carried down East Street, and another outlet provided for that eastern district. The reasons for it are given at length in this report.

9820. In your sixteenth report of the 31st of January 1853, and in two or three other instances, you recur to what you then alluded to, an East Street drainage scheme?—Yes.

9821. It has engaged your attention pretty regularly until the present time?—Yes.

9822. And the day before yesterday your recommendations to the Board of Health were adopted in part, but also modified in part?—Yes.

9823. In a manner which you think not so desirable by any means for the place generally?—By no means desirable.

9824. Did you also in your thirteenth report, of the 4th of October 1852, make a statement with reference to the re-flagging of Mulgrave Terrace?—Yes.

9825. Was it at that time in a very bad condition?—Very bad, and still is.

9826. Was anything done under that suggestion of yours to the Local Board?—Nothing. No later than Wednesday last I was instructed to make a report, owing to a memorial being laid before the Board complaining of the state of this flagging, and I was instructed by the Board to make an estimate of the cost, with the view of re-flagging it.

9827. Is there also a recommendation in that thirteenth report with reference to a certain cowhouse between Victoria Street and Mulgrave Terrace?—Yes.

9828. Has it been in a very bad condition?—Very.

9829. What was done under that report?—I believe in a former report I recommended that the cowbyre should be entirely removed, and I think, if I am not mistaken, I brought this subject forward owing to a letter of complaint. The board gave the owner leave to retain his cowhouse for the present, but notice was to be given him to remove the refuse every day.

9830. Were those orders to abate the nuisance properly executed?—Yes, they have been carried out as well as they can be; it has been carried out to a certain extent.

9831. You think he has rendered it as little of a nuisance as a great cowbyre in such a locality can be?—Yes, I think he has.

(*Mr. Clephan.*) May I state as to that place, that in Mulgrave Terrace they are rather pretentious houses, showy houses, and built for good families. An acquaintance of mine, who is the owner of one of them, complained to me that our rates in Gateshead were destroying his property. He does not himself live in the town. I told him that he must have been misinformed, that it was the nuisance which was destroying the property.

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He has been obliged to let that large house in tenements to families, and that is the process continually going on. Houses are becoming tenemented houses, though built for good families, at rents of 30*l.* or 40*l.* each.

9832. This is an instance of a nuisance having converted what was meant for a wholesome self-contained house into an unwholesome tenemented house?—Yes.

9833. (*To Mr. Hall.*) In your fourteenth report of the 29th of October 1852 did you make any statement with reference to a nuisance arising from a tripery in Pipewellgate?—Yes.

9834. Those triperies have been held not to come within your regulations in respect of slaughter-houses?—No; they come under the clause of the Public Health Act as offensive trades.

9835. What was done upon this suggestion of yours?—I do not remember exactly.

9836. Have the triperies generally throughout this town been more or less nuisances?—They are great nuisances.

9837. Has the condition of them been improved?—No, I do not think it has. They exist in places generally where there is no drainage.

9838. (*Mr. Kell.*) I find on reference to the minutes of the Local Board that, on the 17th of November 1852, on bringing up that report, it was ordered "that it be an instruction to "the Parliamentary and Byelaw Committee to consider the surveyor's suggestion that "there should be a byelaw regulating the carrying on the manufacture of tripe, &c."

9839. (*To Mr. Kell.*) But no such byelaw has yet been issued?—No.

9840. (*Mr. Hall.*) I recommended that, in the event of the board constructing abattoirs, a place should be made for the triperies.

9841. (*To Mr. Hall.*) A public tripery?—Yes, and I see no other means of carrying it out. There are a great many of them scattered about in different parts of the town, where there is no drainage whatever.

9842. They are all offensive, are they?—Very.

9843. It is scarcely possible to keep them clean?—No.

9844. (*Mr. Bateman.*) The makers of the tripe themselves seem healthy people?—Yes.

9845. (*Chairman.*) On the 12th of November 1852 I believe you forwarded a report to Mr. Grainger, superintending inspector of the General Board of Health?—Yes.

9846. In which you mentioned to him the improvements which up to that time had been made by the Board of Health?—Yes; that is, a general outline of what had been done.

9847. In that you stated that up to that time no steps had been taken with regard to a general survey of the borough with a view to any comprehensive system of drainage?—Yes.

9848. But that notwithstanding that, important improvements had been made since the application of the Public Health Act?—Yes.

9849. Among the improvements which you first alluded to was the one in respect of sewering, paving, draining, flagging, and so on Grahamsley Street to which you have already referred?—Yes.

9850. Also the improvements which you had made with respect to the gully grates of the sewers generally?—Yes.

9851. What is the practical condition of those sewers which were in existence before you came into office; are they well constructed and clean and inodorous?—I can only speak of the present main sewer; that is a very large sewer indeed. This is a section of the main sewer (*producing the same*).

9852. (*Mr. Bateman.*) Six feet high?—Six feet three; it is larger than that in some places.

9853. Excavated out of the solid rock apparently?—Yes.

9854. (*Chairman.*) You found this in existence when you came into office; and of this a considerable part will be in a good condition?—The whole of the main sewer in High Street is in a good condition, and a well-built sewer it is; it might have been perhaps better done in some respects.

9855. But on the whole it is not bad or offensive?—Not at all. With regard to the gully grates there are none of them trapped.

9856. You have made some improvements in gully grates, have you not?—This relates to Grahamsley Street only. I may observe, with respect to the gully grates, that I do not think it would be advisable, in the present arrangement of the scavenging of the High Street, which is not in the hands of the Board of Health, to trap these. I think that the turnpike roads should be in the hands of the Board of Health. I think that a great defect in the Public Health Act.

9857. The improvements, to which you alluded in your report to Mr. Grainger, were chiefly draining, sewering, and paving in Grahamsley Street, in Ellison Street West, and in Claremont Place?—Yes, that has been a great improvement to the town. And in respect of gas works I may state that I laid before the board a very lengthened report, and an estimate of the cost, with a view to establishing them, which is given in the first part of the report.

9858. In that report to Mr Grainger did you also state that a great deal of your time had been taken up in the supervision of new buildings?—Yes.

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9859. And of workmen's houses?—Yes; this alludes to the houses which had been constructed at New Gateshead.

9860. You also stated that the board had been unremitting in the removal of piggeries from crowded districts, which had also taken up a good deal of your time?—Yes.

9861. And you alluded to the wording of the 59th clause of the Public Health Act which does not provide for the indemnification of the Local Board of Health in respect of expenses to which they may be put in removing accumulations of manure, which are not intrinsically worth the trouble of removing?—Yes.

9862. You also mentioned that the regulation of slaughter-houses and common lodging-houses had occupied your attention and that of the Board a good deal?—Yes.

9863. And that byelaws had been made and that the erection of public baths and washhouses was also a matter which had occupied attention?—Yes.

9864. Endeavouring to make to us an oral report to the same effect, between the date of the 12th of November 1852 and the outbreak of cholera in September 1853, what principal improvements would you allude to?—Very little indeed; nothing almost. Certainly there is Mirk Lane, which has been paved and is now passable.

9865. And drained also?—It required no drain from its peculiar nature. The scavenage generally has been improved.

9866. The supervision of new buildings, new streets, lodging-houses, slaughter-houses, piggeries, and so on, however, has been constantly going on?—Yes; there have not been many piggeries; those were removed previously.

9867. I mean between November 1852 and September 1853?—There have been several nuisances complained of arising from privies, from the bad arrangement of them; those have been remedied also.

9868. But with regard to what you may call larger and more important improvements but little had been done between November 1852 and September 1853?—Not much, the survey of the eastern part occupying a great deal of my attention; and the plans of the baths and washhouses more particularly, which were executed entirely by myself.

9869. Do you think that the Local Board were less energetic between November 1852 and September 1853 than they had been previously?—No, by no means.

9870. But their attention, so to say, was devoted to minor matters?—Yes. Without going over these reports I cannot exactly answer the question.

9871. In your fifteenth report, of the 20th of December 1852, did you suggest to the Local Board that they should disallow the plans for three houses, which were intended to be let in single rooms as tenemented houses?—Yes.

9872. You stated that you considered that kind of house construction objectionable?—Yes; that the practice of letting single rooms as tenements was one which ought to receive no encouragement from the board. I state this because the Local Board have no power to interfere with the arrangement of rooms in a house; their powers only extend to drainage and water-closets; and I think local boards ought to have that power, and that they should have some control as to the size of back yards, and the internal regulation of houses if they are to be let in tenements.

9873. (*Mr. Kell.*) Do you think that it would be expedient that that Act should contain a clause prohibiting parties from heightening houses?—I do.

9874. (*Chairman.*) Will you refer to your sixteenth report, of the 31st of January 1853, and state what you reported with reference to Robert Urwin, a butcher?—"Robert "Urwin, butcher, applied for leave on April 30th 1852 to build a stable in the back yard "of his house, Collingwood Terrace, which was refused. On June 1st 1852 he again "applied for permission to build a stable according to the same plan; on this occasion "several members of this committee visited the place, when it was again refused. On "October 6th 1852 he applied with a modified plan for permission to build a stable," and with your leave I will read the report then made upon the plan and which was approved of by the board.

9875. You recommended that that modified plan should be adopted?—Yes.

9876. What was the ground of complaint then?—"That he, Robert Urwin, is making "use of this stable as a slaughter-house, contrary to section 64 of the Public Health Act."

9877. That, having obtained leave to build a stable, he had erected a building and used it as a slaughter-house without the consent of the Local Board, and contrary to the 64th section?—Yes.

9878. Did you also state that he was liable to a penalty under that section?—Yes, a penalty of fifty pounds, and a further penalty of forty shillings for each day that the offence was continued.

9879. What instructions were issued to you upon that report?—I was instructed to take proceedings for recovering the penalty of fifty pounds against Mr. Robert Urwin.

9880. Did you do so?—I did.

9881. Did you succeed?—Yes; the particulars of the case I do not remember at this moment exactly, but the place was not allowed, and it is not now.

9882. And you exacted the penalty?—It was not exacted.

9883. The magistrates threatened him that the penalty should be exacted if he used it any more?—Yes.

9884. He was convicted however?—(*Mr. Kell.*) He was.

9885. (*To Mr. Kell.*) The sentence was deferred?—The sentence was deferred to give him an opportunity of abating the nuisance; he paid the costs, but the penalty was not inflicted, in the hope that he would, as he did, abate the nuisance.

9886. (*To Mr. Hall.*) In your twentieth report, of the 2d of May 1853, you made suggestions for putting in force the powers of the fifty-ninth section, for abating a nuisance arising from pigs, and from the want of a drain, and from the bad state of a midden and stagnant water; and also for putting in force the powers of the fifty-eighth section, with reference to the removal of a midden and privy which were in an improper situation?—Yes.

9887. In your twenty-first report, of the 30th of May, you referred to a memorial presented by the inhabitants of Hillgate, complaining of a serious nuisance arising from bones, bone dust, and guano kept in a bonded warehouse, I believe in Hillgate, just opposite Bertram's Buildings?—Yes.

9888. You recommended that a notice should be served upon the agent for the owners of the property for the abatement of the nuisance?—Yes.

9889. What was done?—It was abated to a considerable extent. I laid before the board another report about it, and the person who is the tenant of it, and who is carrying on the business, had an interview with the Board of Health upon the subject, and he was told that, if he did not at once abate it, proceedings would be taken against him. He did so, but on Wednesday last I certified as to the present state of it, and I was instructed to commence proceedings against him. I believe that is the substance of the case; I have just received a letter with regard to this very nuisance.

9890. (*To Mr. Kell.*) You have heard the evidence which Mr. Hall has just given?—I have.

9891. I propose to take your evidence and his together, with reference to the extent to which certain clauses of the Public Health Act have been enforced, and the extent to which others have been neglected. With reference to the 40th section of the Public Health Act, the Local Board have never taken into consideration the question of appointing a legally qualified medical practitioner to be an officer of health?—They have not. At the last meeting but one that question was avoided, by authorizing the surveyor to apply to two medical practitioners in lieu of a medical officer. If an officer of health had been appointed under the 40th section, his certificate alone would have been sufficient.

9892. To enable you to act under the 60th section, you mean?—Yes.

9893. But you require the certificate of two medical practitioners?—Yes not having an officer of health, you require the certificate of two.

9894. Am I to understand you that at a recent meeting of the Council the town surveyor was instructed, whenever he might require it, to apply to two medical practitioners for their certificates, for instance, where "a house, or any part thereof is in such a "filthy or unwholesome condition that the health of any person was affected or endan- "gered thereby," and with a view to whitewashing, cleansing, and purifying?—Yes.

9895. That was the object of the recent order?—It was.

9896. With reference to the powers of the 41st and 42d sections, with regard to preparing a map of the district, that has been under consideration; it has not been adopted as yet for the whole borough; but with reference to a certain portion of it, the eastern district, there has been a partial survey and map prepared, with a view to the drainage of that district?—That is so. The matter has frequently been under consideration, from a time prior to the application of the Health Act, and has always been postponed on the score of expense, as already mentioned.

9897. With reference to the 44th section, authorising the Local Board to purchase certain sewers, nothing has been done, because there were no sewers to purchase; all were public?—That is so.

9898. With reference to the powers of the 45th section, enabling the Local Board to repair, alter, and improve the sewers vested in them, nothing of that kind has been required?—That is so.

(*Mr. Hall.*) Nothing has been required.

9899. (*To Mr. Kell.*) Has anything been required under the 46th section, with reference to the clearing, cleansing, and emptying of sewers?—Yes; some large stones and materials, which had been left during the performance of the contract, were taken out.

9900. With reference to the 49th section, empowering the Local Board to direct the levels, fall and nature of the drains to be laid down in newly erected or re-erected houses, that power, I believe, has been fully put in force?—It has, and most beneficially to the inhabitants.

9901. With reference to the 51st clause, empowering the Local Board to insist upon every house, built before or after the passing of the Act, being provided with a proper water-closet or privy, that power has been put in force with reference to all newly-erected houses, but not with reference to houses already in existence?—

(*Mr. Hall.*) Exactly so.

(*Mr. Kell.*) There have been attempts made, but it has not been fully carried out certainly. Certain parties have had notice.

9902. Even as to houses built before the operation of the Act?—That is so.

9903. Out of the number of houses, however, to which that power would have been properly applicable, it has been applied only to 1 per cent. probably?—I should say so.

William Kell, Esq. *and* *William Hall, Esq.*

10th March 1854.

9904. But with reference to houses built since the application of this Act, you have carried it out fully?—Yes.

(*Mr. Hall.*) In every case.

9905. As far as you know?—Yes.

9906. With reference to the 52d section, empowering the Local Board to see that all factories are provided with water-closets, I understood the other day that there has been no call for the execution of this power?—(*Mr. Kell.*) That is so.

9907. With reference to the 53d section, enacting that before beginning the foundations of a new house, or a house about to be rebuilt, notice shall be given to the Local Board, and so on, that has been properly enforced, and on occasions where people have endeavoured to evade it, you have interfered to insist on that enactment being complied with?—(*Mr. Hall.*) I have.

(*Mr. Kell.*) Yes, a form of notice was issued, and it was stated that it would be required to be accompanied by a plan, and the size of that plan was given, so that they could be conveniently bound up.

9908. As regards the 54th section, authorizing the Local Board to provide "That all "drains whatsoever, and the water-closets, privies, cesspools, and ashpits, within their "district are constructed and kept so as not to be a nuisance or injurious to health," I am afraid that that has been put in force to a very small extent only?

(*Mr. Hall.*) A very small extent only, but there have been a few instances.

(*Mr. Kell.*) There have been a few instances, but not many.

9909. (*To Mr. Kell.*) Only very few out of the multitude to which it might have been applicable?—Indeed it was at once felt that, until we could supply a drain, it would be impracticable to carry it out extensively. I would refer, before we quit section 53, to this circumstance; section 53 requires "That fourteen days at the least, before beginning "to dig or lay out the foundations of or for any new house, or to rebuild any house pulled "down to the extent of the ground floor," notice shall be given. We have had cases of this sort, where a house for instance has been built of two stories, and was unobjectionable in relation to the width of the street and the convenience of the inhabitants, while it was no higher. If other two stories, however, were added to it, it would become highly objectionable; but the additional height having been effected without pulling the existing building down to the first floor, section 53 did not apply. We had no means of preventing that serious evil.

9910. (*Mr. Bateman.*) Can you regulate the height of the houses at all in the first instance?—I am afraid not. I had some correspondence with the General Board upon the subject.

9911. (*Chairman.*) Did you simply draw attention to that fact?—I requested their opinion whether we could interfere, and if we could not, I urged the necessity of applying the requisite remedy in any bill which might be brought forward. I did that in June 1853.

9912. They stated that you could not?—That we could not. Without mentioning names, I stated in a letter to the General Board dated 1st June 1853, "A person has, "without notice to the Local Board, unroofed a large building occupied as tenemented "rooms by a dense population, and added two stories to its height, to the great annoyance "of the neighbours, who have memorialized the Local Board on the subject. It is doubted "whether the Local Board have power to prevent heightening previously erected buildings, "where the owners, as in this case, do not pull them down to the ground floor. In a second "case notice has been given by a party of his intention to convert a stable into a dwelling-"house, by erecting another storey over the present buildings of one storey without "pulling down any of the walls. The stable is situated in a back yard of small "dimensions; the only approach to it is by a back lane. This lane is one ten or eleven "feet in width, and the Local Board are desirous to prevent that which they deem an "objectionable practice, erroneous in principle, and pregnant with evils to the public health. "A third case has occurred in which a party erected a stable in a back yard behind one "of a row of houses, divided from the back yards of the opposite houses by a back lane "only nine feet in width. He having got the stable (which was not deemed to require a "notice under section 53, as not being a 'house' in the acceptation of the Public Health "Act), converted it into a slaughter-house, for which he was fined under section 64, and "he has intimated his intention now to convert the stable into a dwelling-house, by the "same means as the party in the second case proposes to adopt." On reference to the first case, the General Board replied that it did not appear that the Local Board had power to prevent the heightening of a building already erected and not pulled down to the ground-floor. In relation to the second case, their reply was that it appeared to be such a rebuilding of a house as came within the 49th, 51st, and 53d sections, and that the Local Board should use the powers given in these sections to satisfy themselves as to the drains and lower floor, or cellar levels, and privies of such building. "It does not "appear, however, that they can insist on anything not included in these sections, such "as particular dimensions of area about, before, or behind a house." Then the General Board further stated, "That pulling down to the ground floor does not mean pulling down "to the bottom of such floor, but to the top of it. A one storey stable is only a ground-

"floor, and any unroofing of it for the purpose of building another storey on the top "appears to be a rebuilding within the meaning of the above sections. The Board would, "therefore, recommend the Local Board in all such cases to insist on notice and compliance "with their directions in the matters referred to in these parts of the statute." It thus appears that the word "floor," in the Public Health Act (this is my own observation), is to be taken in the sense common to the south of England, namely, as synonymous with "storey," as understood in this district. I may state that I could not convince our Local Board that that was the meaning; they thought the bottom was the floor, and in consequence it would be difficult, if not impossible, to get a conviction.

9912A. With reference to the 55th section, empowering the Local Board to provide for the surface cleansing, they have done so to a certain extent?—(*Mr. Hall.*) Yes.

9913. But accumulations have remained to a very considerable extent in which they have not enforced the power?—Speaking up to the present time they have taken very good measures, I think, with the view of remedying that.

9914. But up to the outbreak of cholera in 1853 they had not enforced it by any means to the full extent to which it would have been desirable for them to do it?—They had not adopted the measures which they have adopted since, and which it would have been very desirable for them to have adopted previously.

9915. With reference to the 56th section, enabling the Local Board to provide midden steads and so on, nothing has been done?—(*Mr. Kell.*) Yes, they have one depôt, and have made arrangements with the railway company for another; they had one. I may say that many attempts had been made to procure new ones without success.

9916. With reference to the 57th section, I believe, the Local Board have not provided or maintained in any situations whatever any public water-closets or privies?—That is so. But a plan was recently submitted to the Council and approved.

9917. But up to the time of the epidemic nothing had been done?—No.

9918. With reference to the 58th section enabling the Local Board to "drain, cleanse, "cover, or fill up, or cause to be drained, cleansed, covered, or filled up all ponds, pools, "open ditches, sewers, drains, and places containing or used for the collection of any "drainage, filth," and so on, "prejudicial to health," a little had been done, and a very little?—Not much.

9919. Similarly with reference to the 59th section giving them control over swineries and pigsties, something has been done?—A great deal has been done. Several parties had notice, and others were proceeded against before the magistrates.

9920. And in a few instances you have proceeded against people for stagnant water in or about cellars, and for allowing the contents of water-closets or cesspools to overflow them?—That is so.

9921. But not in many cases?—Not in many cases.

9922. With reference to the removal of accumulations of dung, manure, or filth, or other offensive or noxious matter, that has also been put in force in certain instances, but not in many instances up to the outbreak of cholera?—That is so; and I would refer to a correspondence which I had with the General Board upon that subject.

9923. You mean with reference to the expense of removing it, when the value of the accumulation removed is not sufficient to defray that expense?—I do.

9924. The section does not provide for the reimbursement of the Local Board for the expense of removing it, except in those cases where the intrinsic value of the material removed is itself adequate thereto?—That is so.

9925. And in Gateshead, I believe, your accumulations of refuse habitually are not of that nature?—They are not. "I am directed by the Gateshead Local Board of Health to "draw the attention of the General Board of Health to the imperfect working in practice "of section 59 of the Public Health Act, in the hope that in the next supplementary "Public Health Act a remedy may be effected. By the first portion of that section the "expenses of abatement of certain nuisances are to be repaid by the occupiers of the "premises on which the same exist. But when accumulations of manure, dung, soil, filth, "and other offensive and noxious matters mentioned in the second portion of the same "section are to be removed, the only provision is that they may be taken away after "twenty-four hours' notice by the inspector of nuisances, and the substances referred to "are vested in the Local Board, who are entitled to the whole proceeds arising from their "sale. In many districts situated in horticultural and agricultural localities, this "provision possibly may amply repay Local Boards; but in Gateshead, a densely "populated seat of commerce surrounded by lands of comparatively small extent, and "covered in large proportions by the appliances of manufactures and mining, the mode of "repayment is inoperative and naturally deters this Board from using the 59th section "extensively, a circumstance they regret, since the clause is one of the most valuable in "the Act. So large is the production of manure, not only in the towns but also at the "mines and manufactures of this neighbourhood, that the farmers within a distance in "which manure is worth carriage, make a selection of the best only, and will not pay "anything for the second-rate substances collected by the Board from ashpits, &c., and "frequently refuse to be at the cost of carrying them even when they are offered gratis.

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"During the recent attack of cholera the Board ceased continuing to give the useless notices, and by sufferance cleansed a vast quantity of middens, &c. Of course the owners and occupiers, whether notice was given or not, have in great numbers refused to repay the Board their charges, and thus necessary reforms in private properties are, by the imperfections of the section complained of, carried on at a dead loss to the public. The Local Board of Health would therefore request the most earnest endeavours of the General Board to procure the power of recovering the expenses in carrying out the latter part of section 59 in the same manner as those mentioned in the first part. In other respects, they fully recognize the sanitary value of the section, so much so that on its principle they venture to suggest another improvement in the Public Health Act, which would be of the last importance. They allude to a power which should be given (as it is already done in section 59) to the inspector of nuisances to issue all the notices preliminary to compulsory measures. At present, if a nuisance accompanied with danger of health however imminent occurs, no progress can be made in its removal until the monthly meeting of the Board, when sealed notices are ordered, and then a reasonable time for the party concerned to obey them must be given. The Board conceive that the inspector's power should (except in section 59) be confined to giving the notices; but if they could be given by him, the Board could proceed with the works immediately after their next meeting." Perhaps it will not be improper to refer now to the order which was made the other day by the Board, to receive contracts for removing not only the sewage but the contents of the ashpits, the ashes, and other refuse of the inhabitants.

9926. You have recently made an arrangement for the removal of such matters from privies and ashpits, which would have been very desirable for you to have done before the outbreak of the cholera?—Certainly.

9927. (*Mr. Clephan.*) To show the necessity of it, how much was removed after the cholera broke out?

(*Mr. Hall.*) 450 cart loads, and at a cost of about 22*l.*

9928. (*Chairman.*) At the outbreak of the cholera you found 450 loads of offensive matter requiring removal?—Yes.

9929. (*Mr. Clephan.*) And the farmers, I think, came in and removed over and above that at least half as much again?—Yes; I should think about half as much again.

9930. (*Chairman.*) Then on the whole would there have been between 600 and 700 cart loads of offensive matter about the town at the time of the outbreak of the cholera?—Yes; I have no doubt of it, if not more. A great deal would not be carted away at all. A good deal still remained, and remains.

9931. (*Mr. Bateman.*) That was what you removed, leaving some behind you?—Yes.

9932. (*Chairman.*) With reference to the 60th clause, empowering the Local Board on certain certificates to have houses or parts thereof whitewashed, cleansed, or purified, I understand that literally nothing was done till the epidemic broke out?—Nothing, I think. It would be a difficult thing to know where to begin first, there is so much to do; for all Pipewellgate and all Hillgate would require to be done at once.

9933. And when the epidemic broke out what money did you expend?—We limewashed 19 courts and yards, 56 rooms and 63 passages.

9934. What was the expense?—6*l.* 15*s.* 10*d.*

9935. With respect to the 61st, 62d, and 63d clauses, having reference to slaughter-houses, you passed byelaws on the subject which you have rigorously and stringently enforced?—(*Mr. Kell.*) We have.

9936. To the great benefit of the town?—To the very great benefit of the town.

9937. With reference to the 64th section, giving you power in certain respects with regard to offensive trades, if attempted to be newly established, that power you also have enforced on some occasions at all events?—We have, I believe, on every occasion on which an attempt has been made to establish a trade coming within the scope of the section.

(*Mr. Hall.*) That is so.

(*Mr. Kell.*) And upon the putting in force of that power has arisen the question as to whether a consent once given can be withdrawn.

9938. Whether in fact it does not get beyond your jurisdiction by being once licensed in any form?—That is so.

9939. With reference to the 66th clause in respect of lodging-houses, the powers of that clause have been fully and systematically put in force, to the great benefit of the town also?—They have.

9940. With reference to the 67th section, giving you jurisdiction in respect of the occupation of cellars, I know of one instance in which that has been put in force?—(*Mr. Hall.*) Yes; three, I think.

9941. That is not probably a large proportion of the instances in which it might desirably have been put in force?—In Victoria Street for instance they are cellar lodgings, but I am rather doubtful as to the application of the clause, on account of the height of them above the ground line.

9942. Would you say that that section also has been pretty fully carried out?—Yes.

9943. (*To Mr. Kell.*) The powers of the 69th section, enabling you compulsorily to have private streets sewered, levelled, flagged, paved and channelled, have been put in force in several instances, although not in all the instances which Mr. Town Surveyor has suggested?—That is so; and I may state that the reason why they have not been more extensively put in execution is the technical legal objections with which we have been met. We have had to proceed before the magistrates for the recovery of private improvement expenses, and have not always succeeded.

9944. In illustration of the difficulty to which you were subjected in the case of those notices, do you refer to an instance in which in carrying out the powers of the 58th section in accordance with a memorial from the inhabitants of Claremont Place, you were obliged to put in force also the powers of the 69th section?—I do.

9945. And the notice given by you to the inhabitants of that locality to execute the works authorised by the 59th section was held not to cover the expense of other improvements authorised by the 69th section and rendered necessary in the execution of the works authorised by the 58th section?—That is so; and I may state that I think it a great hardship upon the ratepayers that they are to advance money out of their own pockets for private improvement expenses, and that the board can recover no part of that until the whole cost is incurred. I think the Local Board when they order a work to be done should have the power of ordering the expenses to be paid at once.

9946. (*Mr. Bateman.*) As the work goes on?—As the work goes on. The parties lie by quietly until they have got the benefit, and then they say, "Now we have got the "benefit, but we are not legally liable to pay." I have been met with all sorts of legal objections. For instance, would you suppose that the trustees of a school objected to pay because they were not liable to rates? They might as well have objected to pay for roofing the school.

9947. (*Chairman.*) With reference to the power of the 72d section, giving you the same jurisdiction over newly laid out streets as was given you by a previous clause with respect to new houses, that power you have fully put in force?—We have; and I consider it a very beneficial one. I consider it of the greatest importance; but for those two clauses, regarding notices of the building of a house and of laying out a street, we should have gone on accumulating such places as Victoria Street.

9948. With reference to the 76th section, authorizing you to require or to compel a supply of water, you have, in one instance at least, exercised that power?
(*Mr. Hall.*) Yes, in a few instances in Grahamsley Street.

(*Mr. Kell.*) And on that the question has arisen as to what constitutes a house, what is the legal meaning of the word "house."

9949. That power, with reference to compelling a supply of water, where it can be furnished to a house at a price not exceeding 2*d.* a week, has not been applicable in the case of a house containing several tenants, to whom it would not have been possible to supply the water at that rate?—Yes.

9950. (*Mr. Hall to Mr. Kell.*) The word "occupier" only is used in that clause for a supply of water; would it not be desirable that the word "owner" should be introduced?—Yes; it would be a great improvement.

9951. (*Chairman.*) Then the only point I think that remains to be inquired into is with reference to the rates. Can you let us know what rates have been levied for the execution of sanitary works by the Local Board?—I will give you a printed copy of the accounts as audited and published annually since the Public Health Act was passed, from which you might extract it.

9952. Will you be good enough to extract it for us, down to the 1st of September 1853, the outbreak of cholera, and to forward that to us?—I can go up to the 31st of August 1853, at any rate, because our accounts are audited up to that date.

9953. Do you levy the rate at the time you propose an improvement, or after it is executed?—We levy our rates for public improvements prospectively, and for private improvements after they are executed.

9954. Therefore your accounts up to the 31st of August 1853 will, so to say, contain the account for all the works executed up to the outbreak of the cholera?—Just so. Then in consequence of the necessity for being provided with funds to execute private improvement expenses, the cost of which cannot be received until after the whole has been disbursed, we have been obliged to have something in hand.

9955. You will be good enough to distinguish what monies have been expended upon public improvements, and what upon private?—Yes.

9956. In the one case you have spent it, and in the other case you have superintended the spending of it?—Yes. In last year, having got the machinery fairly to work, we expended no less than £826.

9957. (*Mr. Bateman.*) Do the corporation draw their whole revenue from the rates, or have they any private property?—They have no private property; they draw the whole of their revenue from rates.

The following return was afterwards sent in by Mr. Kell:

William Kell, Esq. and William Hall, Esq.

10th March 1854.

A RETURN of the RATES levied by the GATESHEAD LOCAL BOARD OF HEALTH during the years 1852 and 1853, and of their RECEIPTS and EXPENDITURE for the two years ending 31st August 1853:

I. RATES.*

Amount per pound.		£ s. d.	£ s. d.	£ s. d.
3*d.*	General District rate for the year ending December 1852	634 13 9¾		
2*d.*	Highway Rate for same	433 4 2		
3*d.*	General District Rate for year ending December 1853	672 16 9		
2*d.*	Highway Rate for same	441 9 10		
	Total rates collected for entire District			2,182 4 6¾
6*d.*	Lighting Rate for year ending December 1852	913 5 11¾		
6*d.*	Lighting Rate for year ending December 1853	981 11 4		
	Total collected for Lighting Fund			1,894 17 3¾
7*d.*	Footway Paving Rate for year ending December 1852	1,080 18 4½		
7*d.*	Footway Paving Rate for year ending December 1853	1,155 8 6		
	Private improvement expenses recovered from parties liable, and repaid to Footway Paving Fund	426 16 3½		
	Total collected for Footway Paving Fund			2,663 3 2
	Total Rates collected			£6,740 5 0½†

1*s.* 6*d.* Average Rate in Town District.

II. RECEIPTS AND EXPENDITURE.

RECEIPTS.

	£ s. d.	£ s. d.
General District, Highway Rate, General District Rate, and District Fund Account—		
Year ending 31st August, 1852	780 7 6½	
Year ending 31st August, 1853	1,141 4 5	
		1,921 11 11½
Lighted District, Lighting Rate—		
Year ending 31st August, 1852	458 6 6½	
Year ending 31st August, 1853	957 6 0½	
		1,415 12 7
Paved Footway District, Footway Paving Rate, money transferred from the late Gateshead Street Act, and monies repaid by persons liable for private works—		
Year ending 31st August, 1852	770 18 6½	
Year ending 31st August, 1853	1,506 11 5½	
		2,277 10 0
Total Receipts		£5,614 14 6½†

A. PUBLIC EXPENDITURE.

	£ s. d.	£ s. d.
General District—		
Year ending 31st August, 1852	340 19 4	
Year ending 31st August, 1853	1,194 6 9	
		1,535 6 1
Lighted District—		
Year ending 31st August, 1852	548 10 8	
Year ending 31st August, 1853	733 18 1	
		1,282 8 9
Paved Footway District—		
Year ending 31st August, 1852	832 8 1	
Year ending 31st August, 1853	1,373 14 8	
	2,206 2 9	
Deduct Private Expenditure	602 8 10	
		1,603 13 11
Total Public Expenditure		4,421 8 9

B. PRIVATE EXPENDITURE.

For compulsory sanitary improvements, to be repaid by the owners or occupiers	602 8 10
Total expenditure	5,023 17 7
Balance in Treasurer's hand 31st August, 1853	590 16 11½
	£5,614 14 6½

Town Hall, Gateshead,
11th March, 1854.

WILLIAM KELL,
Clerk to the Local Board.

* All the rates are made on an estimate of the expenses from January to December, and are collected half-yearly' one half between January and June, and the other between June and December.

† The difference between the amount of rates and the amount of receipts arises from the circumstance that the receipts and expenditure are audited to August only, while the rates are audited to December.

(*Mr. Hall.*) I have a list of the length of the public courts and alleys in Pipewellgate, Hillgate, and different parts of the town, which are to the extent of nearly half a mile long, 39 chains.

9958. (*Chairman.*) That is the aggregate length of the public courts and alleys?—Yes.

9959. Excluding what you would call the main thoroughfares?—Yes. Besides that the Board of Health, who are surveyors of highways, have, in the nature of roads, nearly nine miles, that is, the separate length of all the streets, namely, main streets in the town and the outlying highways. I believe I have already given the lengths in the town, that is, the whole length of the highways upheld by the Board.

9960. The public courts and alleys besides that in the town are nearly half a mile?—Yes.

9961. And of private alleys have you any notion?—No; it is very difficult to make out that. The circumference of the borough is twelve miles, the area of it is 3,500 acres.

9962. The length of main sewer in Church Street is 60 chains?—Yes.

9963. In Grahamsley Street nearly seven and a half chains?—Yes.

9964. In Charles Street, Ellison Street, Melbourne Street, Victoria Street, and Grosvenor Street, all of which you say is very imperfect, how many chains?—Thirty-two.

9965. Therefore the whole amount of sewer existing in the town is 99½ chains?—Yes. The population, I believe, would be about 26,000; it is computed at 25,000, but I think 26,000 is nearer.

9966. The amount of sewerage which has been executed since you have been in office will have been the 7½ chains in Grahamsley Street?—Yes, and there are the small branches which are not included in this.

9967. You may say that eight chains is the amount of sewerage which has been added to the sewerage of the borough in the two years since the Board of Health came into operation?—Yes. I have only another remark to make with regard to houses unfit for habitation. There is no clause in the Public Health Act, giving power to the Board of Health to close any such houses. I may also state that, independently of the cholera cases, this cholera map is the most correct map of the town in existence. All Pipewellgate and Hillgate have been revised, and are in reality accurately represented; the whole of the town indeed.

9968. The inhabited part of the town is more correctly represented in this map than anywhere else?—Yes; all the new buildings have been put down accurately. I have taken great care in that respect.

(*Mr. Kell.*) I am very anxious, and I consider it most important that this map should appear in your report. We have heard throughout the whole of this inquiry how far the opinions of intelligent men differ from the statistical details, when they can be tested. I consider that a map like this, which affords upon the face of it the most important statistical details, is of the greatest consequence.

(*Mr. Clephan.*) It is very remarkable that in a great many of the really good parts of the town you had no mortality at all, Claremont Place, Walker Terrace, Sedgwick Place, Catherine Terrace. In fact I am satisfied that the mortality is associated in all cases with sanitary evils. The wife of the largest ratepayer in a very bad district died of the cholera. Her death made the first sensation in the town, because she was a woman of good position in society and well known; and you never find epidemics excite much panic in a town until they come up to the middling classes.

(*Mr. Kell.*) I see in my letter book, under date of 11th of October 1853, a reply to an inquiry from the Mayor of Liverpool as to the type of cholera, with its treatment, during the late visitation. Being unable to give a satisfactory reply myself, I handed the letter to the late Mr. Brown, the then house surgeon of the dispensary, and his letter is in this letter book. It is the only evidence that you can have from the person who was then perhaps more largely mixed up with it than any other. "In answer to your note of the "6th ult. as to type of cholera with its treatment during the late visitation, I will confine "myself to a few statements of facts. The present type of cholera is in no way changed "from what it was in 1832. Diarrhœa began to be epidemic a little before and ceased "to be so a little after the cholera. It prevailed to an extent to which I believe it is "never observed to prevail except when in conjunction with cholera. Many of the "places in which cholera broke out, and all those in which it prevailed to any extent, "were previously well known for their unhealthiness, and have been noted for their "liability to fever and other epidemic diseases. The treatment of premonitory diarrhœa "was satisfactory; out of 900 cases we lost six patients." There is then a statement of the treatment and the letter proceeds. "My experience of the late epidemic would lead "me to urge the great importance of house-to-house visitation, with a view to the "discovery and treatment of all cases in the early and still manageable stages, the removal "of the healthy from infected and overcrowded houses to places of refuge, the clearing "away of all local impurities, lime-washing the houses and other like measures. Cholera "may arise from local impurities, &c., or from atmospheric influences, and afterwards "spread by contagion. Small pox and measles must in the first instance have arisen

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"without contagion, yet it is certain they are propagated by contagion. If so may not "the same thing occur in the case of cholera?" The only additional remark which I would make is that in my evidence before you I think I underrated the scavenging. I think that subsequently to Mr. Hall's appointment as surveyor the scavenging has been much better than before.

MINUTES OF EVIDENCE

TAKEN BEFORE

THE CHOLERA INQUIRY COMMISSIONERS,

TYNEMOUTH.

Commissioners.

JOSEPH BURNLEY HUME, Esq., IN THE CHAIR.
JOHN SIMON, Esq.,
JOHN FREDERIC BATEMAN, Esq.

THOMAS CARR LIETCH, Esq., sworn.

T. C. Lietch, Esq.

24th Jan. 1854.

9969. (*Chairman.*) You are Town Clerk of the borough of Tynemouth?—I am.

9970. And Clerk to the Local Board of Health there?—I am. The Council are the Local Board of Health there; the district is co-extensive with the borough.

9971. How many years have you been Town Clerk?—Since November 1849, when the borough of Tynemouth was incorporated. I was appointed Town Clerk on its incorporation.

9972. That borough was one of the places very severely visited with the cholera in 1848-9?—In 1849 it was.

9973. At the time of the outbreak of cholera in 1849 the sanitary state of the town was bad?—Very bad, and it is very far from being good yet.

9974. The houses were undrained and supplied with bad water?—They were and are still undrained, and not very well supplied with water.

9975. They were in a filthy condition too, many of them?—Many parts of the town certainly were in a very filthy condition.

9976. Unprovided with proper accommodation?—Yes, and are so still to a great extent.

9977. There were great nuisances and accumulations of filth in various parts of the town?—Yes; these were certainly worse than they are now. I may state in general that with respect to permanent works, main sewerage and drainage works, the borough is in very nearly the same condition as it was in 1849.

9978. (*Mr. Simon.*) How long have you been under the Public Health Act?—Rather more than two years now; the Act of Parliament confirming the provisional order of the General Board of Health received the royal assent on 8th August 1851, but some time elapsed before we could get anything done towards carrying out the powers. A committee was appointed to report upon the powers that the Council had then obtained, and it was January 1852 before the officers were appointed and before anything really could be said to be done under the powers of the Public Health Act.

9979. (*Chairman.*) After the Local Board of Health commenced its operations were considerable accumulations of filth and so on removed?—Yes; since the Public Health Act has been applied to the district, the scavenging and surface cleansing has been attended to very much indeed.

9980. Was not also a systematic and thorough cleansing of the borough effected?—A thorough cleansing took place in September last, and also in September of the previous year, when the cholera was making very rapid progress on the continent, and when fears were entertained whether it might not also come to the east coast of England. Accordingly an additional force of scavengers was employed by the Local Board of Health, and a great deal done towards putting the borough into a much more cleanly condition, in the way of surface cleansing, cleaning of alleys and back courts, and overcrowded buildings in the town.

9981. (*Mr. Bateman.*) At what time was this?—This was in September 1852.

9982. (*Chairman.*) Something like 1,500 cart loads of absolute filth were removed, were they not?—That was in September last; the surface cleansing in 1852 was not to so great an extent.

9983. (*Mr. Simon.*) When did your more active process of cleansing begin in 1853?—In September 1853.

9984. The middle, the end, or the beginning of the month?—The beginning. We had a meeting on the 6th of September 1853, a special meeting of the Public Health Act Committee of the Local Board of Health of Tynemouth. Dr. Greenhow, now of London, at that time resident in Tynemouth, was the chairman of that committee. My impression is that at that time there was a report in circulation that some one case had occurred in this immediate locality. Of that I am not quite sure, but certainly it was fast approaching. Dr. Greenhow consulted me as to the steps that could be taken, and the precautionary

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measures that ought to be adopted in the borough against the apprehended attack; and I remember advising him that the first thing was to make application to the authorities in London to get the Epidemic Diseases and Nuisances Removal Act put in force. At that time the Order in Council had not been issued, and was not issued I believe for a good many days after that. We then placed ourselves in communication with the clerk to the Board of Guardians, who consented to call a special meeting of the guardians to receive our communication, and in the mean time, that is to say, previously to the meeting of the Board of Guardians, we instituted house-to-house visitation throughout the whole borough, by means of the committee and other members of the Town Council dividing themselves into sub-committees.

9985. (*Chairman.*) At what date did you take that latter step?—On the 8th of September the sub-committees commenced their house-to-house visitation; the special meeting of the Board of Guardians was held on the 14th of September.

9986. (*Mr. Simon.*) Had the works begun at that time?—The house-to-house visitation and the surface cleansing had begun. They were commenced and carried on by the Local Board of Health at once, without waiting for the guardians.

9987. After the 6th of September?—Yes; it was after the 6th that any extra works began.

9988. (*Chairman.*) And am I right in supposing that those extra works consisted chiefly in paving, and a little draining, and a thorough cleansing of the borough?—Yes. Not much draining; a little draining, a good deal of paving, and great deal of surface cleansing. The channelling was renewed, and a regular visitation of the lodging-houses also was instituted. We passed byelaws under the Common Lodging-houses Act, and appointed an inspector of lodging-houses.

9989. And in trapping the gulley holes you did something?—Yes.

9990. And in clearing out the rooms and cellars, theretofore used as privies and ashpits?—Yes.

9991. Pigsties also were removed?—Yes; to a considerable extent. We have now a byelaw, but it was not in force at that time, prohibiting any pigsties within 30 yards of any dwelling-house within what we call the lighted and watched part of the borough, that is, the inhabited part of the borough. At the time of the cleansing, in September 1853, also, that was done very thoroughly. The Local Board of Health, although perhaps it might be a little beyond their powers, took upon them the cleansing of all the middens and privies throughout the whole borough, and cleaned them all out regularly throughout the place.

9992. (*Mr. Simon.*) Was that complete cleansing of the middens effected within a fortnight?—I should say it was. It commenced on the 7th, and a considerable amount of cleansing was continued for several weeks; but the greater part of it was done within a fortnight, certainly, from the 6th of September.

9293. (*Chairman.*) Were all the common lodging-houses also thoroughly lime-washed and cleansed?—Yes.

9994. Did you close up any entirely?—Yes.

9995. Did you also institute a periodical visitation of them twice a day by the police?—Yes.

9996. Were several of the dark damp courts and passages also cleaned out?—Yes; a good deal was done in that way too. Quicklime, I think, in particular, and chloride of lime were used very freely. Quicklime was directed to be thrown into all the ashholes and middensteads, both public and private. In every private house a supply was furnished, and chloride of lime was ordered to be thrown into all the gulley holes and dirty corners of streets and lanes, and delivered to be used in the rooms of the poor people in overcrowded courts.

9997. You alluded to an application to the Board of Guardians, was that with a view to enabling houses to be closed by the certificate of medical men to be appointed by that Board?—Yes; partly for that, and partly to induce them to order their medical attendants to give gratuitous advice and medicines to all persons who might apply to them at any time, in anticipation of this attack of cholera.

9998. And also, I suppose, to secure a general co-operation between the Board of Health and the Board of Guardians?—Yes. There were certain parts of the work that we thought would be better done by means of our force, and other parts of it that we had no jurisdiction over. The particular part that we had no jurisdiction over was the supply of medical attendance, and of relief in the shape of medicines. The Board of Guardians ordered their officers to supply medicines gratuitously to all persons, whoever they might be that might apply for them. They also applied to the governors of the dispensary to throw open that institution to all persons who might apply there at any time of the day or night. That was done, and the dispensary furnished an account to the Board of Guardians of the expenses of those medicines. It was done at the expense of the union.

9999. What were the facts connected with the visitation of cholera; how many cases had you?—We had twelve deaths, returned as cholera deaths, within the borough. Before going into that, I may allude to one of the measures, which was considered to be a very useful one, and which was carried out in the densely peopled part of Shields; that is the part between the bank-top and the river side. We have in Shields harbour a floating engine, which belongs to the trustees of the life boat fund, a voluntary association in the port, and application was made to them for the use of it. It is a very powerful

engine; it throws up a ton of water per minute, I believe. We carried that on for four days; pumping the salt water from the river up all the bank sides, which ran down again, cleaning out all the courts and lanes and stairs, sometimes causing a little annoyance to the inhabitants; but it certainly purified the air in a remarkable degree for many days after that. Places that usually did not smell at all sweet were fresh and clean after that.

10,000. (*Mr. Simon.*) On what day did you do that?—That I am not able to state. I have not taken a note of it.

10,001. (*Chairman.*) Have you the date of your first death?—Yes. The first was on the 15th of September, a person named Mary Ann Carr, an old woman of 64, living in Stephenson Street, North Shields. The entry which I have opposite her name, obtained from the medical officer of the union, is that she came from Newcastle, and took the complaint immediately on her return.

10,002. When was the last case?—The 30th of October, Mary Soden, aged 54, a tramp. She had come from a house in Blyth, which she had left in consequence of cholera having broken out there, and came to Shields and died.

10,003. Had you altogether twelve deaths between the 15th of September and the 30th of October?—Yes.

10,004. (*Mr. Simon.*) Was there much diarrhœa within the district?—Yes; a good deal, but not so much, I have heard, as occurred in Newcastle, or so much as occurred here on other occasions.

10,005. (*Chairman.*) Just at your western border, in Howden, there was a good deal of cholera, was there not?—In proportion to the population the cases on the western border were very much more numerous than in any other part of the borough. The population of the whole of Howden cannot exceed 200 or 300, I should think; and there were four cases in East Howden alone, out of a very small population.

10,006. On the whole, as compared with previous visitations, the recent visitation in Tynemouth was exceedingly light?—It was.

10,007. (*Mr. Simon.*) Is Walker within your union?—It is within Tynemouth Union, but far beyond the limits of Tynemouth borough or town.

10,008. Did the mortality of that place come within your cognizance?—No; but I know it was considerable.

10,009. Do you know its sanitary condition?—No.

10,010. Do not your union officers attend there?—Yes.

10,011. But its sanitary condition has not come under your knowledge?—Only as it might have come to the knowledge of any other person; I have no official knowledge of it and no accurate knowledge of it.

10,012. With what view were all these measures adopted?—Certainly in the hope that they would be of service either in preventing or checking and mitigating the attack of cholera, with which we then appeared to be threatened.

10,013. Do you believe that they were of service?—I certainly believe that they were of some service; but I would rather give evidence upon facts than opinions. I certainly believe they were of service; they were adopted in the hope and with the view of their being of service; and if we had not believed that they would be of service we should not have taken them.

10,014. When you set about adopting them were you not all in great fear of the visitation of cholera?—Certainly.

10,015. Did you not believe that it was impending?—Quite so; we expected it from day to day.

10,016. Have you any reason to believe now that it was not then impending?—Under the same circumstances I would believe again that it was impending.

10,017. (*Chairman.*) The water in Tynemouth I believe is very bad?—It is not very good, but it is not very bad; it is deficient in quantity, and not very excellent in quality; but still it is very fair water, if we had plenty of it. At present it is supplied to a large portion of the town on the intermittent system. We are getting better, but not quite so fast as I should like to see things getting on. The water company are making considerable improvements from time to time, but they do not get on quite fast enough for us.

10,018. (*Mr. Clayton.*) You are wise people at Tynemouth; you do not stand still, but bestir yourselves—*dum proximus ardet.* You commenced your cleansing on the 6th of September?—From the 6th of September. A meeting was held on the 6th of September, at which measures were ordered.

10,019. Cases of cholera having already occurred in Newcastle?—You know that much better than I do, but I believe it was in consequence of the fire having burst out so extremely near to us.

10,020. You had not, I think, till then, put in force the Common Lodging-houses Act?—No; but we had appointed an inspector of lodging-houses under the powers of the Public Health Act, which confers powers of that kind, independently of the powers of the Common Lodging-house Act. We have since adopted the Common Lodging-houses Act and passed our byelaws under that Act, but we had a considerable time previous to that appointed an inspector of common lodging-houses under the Public Health Act.

10,021. Which prevails with you, but not in Newcastle?—Exactly; also as to slaughter-houses, we instituted regulations for them, and an inspector of slaughter-houses had been appointed for some time.

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10,022. (*Chairman.*) Have you any objection to leave with us this paper from which you are reading?—None at all; it is hardly in a fit state for you, I am afraid, but you are welcome to make what use of it you please.

10,023. These statements are correct?—They are so far as I know. We are still, I am sorry to say, anything but what we ought to be in the way either of sewering or draining. We have our heads, however, turned in the right direction, and I hope we shall be able to give a better account of ourselves before many years are over. We have had a complete survey made of the borough, for the purpose of having a proper plan of sewerage works laid down; that plan is now in the hands of the Board of Health, and Mr. Rawlinson has been appointed our engineer to lay the works down, but he has not got any further than that yet. We find that these things take a great deal of time to carry out. We have been doing what we could in the meantime. We have adopted the Baths and Washhouses Act; those works are nearly completed; I believe they will be open for use in two or three months, and we have been doing something in the way of benefiting very densely peopled parts of the town, where it is impossible to get back-yards and privies. We have been supplying public water-closets at the expense of the Board of Health, and taking some other temporary measures of that kind, but they are all temporary until we can get our sewerage works carried out.

The following statements are extracted from the above paper:

POPULATION of the Borough of TYNEMOUTH according to the Census for 1851:

Tynemouth township		14,493
Military in barracks		151
North Shields township		8,882
Chirton	do.	3,960
Preston	do.	983
Cullercoats	do.	695
Total		29,170

STATEMENT of Cases of Deaths from Cholera in the Borough of Tynemouth, 1853.

Name.	Age.	Date of Death.	Residence.	Remarks.
		North Shields District.		
William McColl	45	22d September	Turpin's Bank Bell Street.	This is a small collection principally of pitmen's cottages, situated on the extreme verge of the borough, and forming a portion of a large and very filthy village, or small town, called Howden, with an open ditch or runner through it. The town itself is outside of our jurisdiction.
Robert Rutledge	28	2d October	East Howdon	
Ann Forster	39	6th October	East Howdon	
Mary Ann Atkinson.	3	7th October	East Howdon	
Janet Pyves	57	19th October	Pipemaker's Bk. North Shields.	
John Newcastle	68	26th October	East Howdon.	
Mary Soden	54	30th October	- - -	Travelling woman, Cramlington to Shields, from a house in Blyth, which she had left in consequence of the cholera having broken out there.
		Tynemouth District.		
Mary Ann Carr	64	15th September	Stephenson St., North Shields	Came from Newcastle and took the complaint immediately on her return.
Barbara Stewart Watson.	65	„	Tynemouth (from Newcastle).	
Thomas Carr	63	21st September	Stephenson Street	Brother of the above Mary Ann Carr, a bed-ridden old man.
William Henry Willis.	42	21st September	Wellington St., North Shields.	Blyth postman.
Ralph Atkin	55	28th September	Church Street (from Howden)	
		TOTAL	12 Deaths.	

In addition to the above there were several cases apparently of decided cholera where death did not take place, and many hundred cases of choleraic diarrhœa which were successfully dealt with.