

## **Summary of experience on disease, and comparative rates of mortality / by William Lee.**

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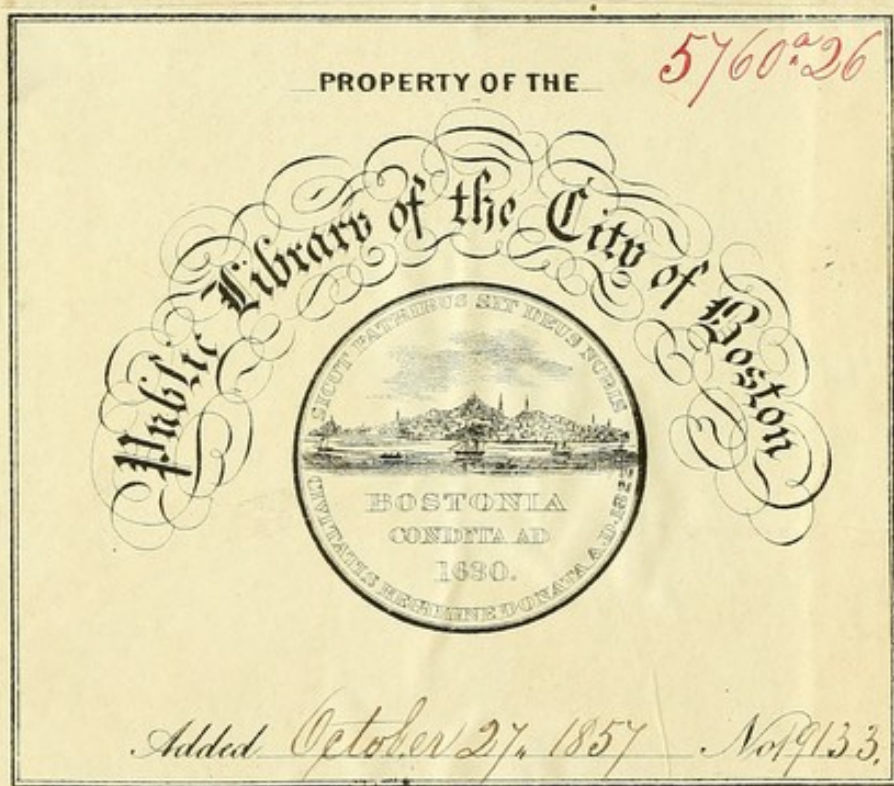






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**PUBLIC HEALTH ACT.**

(11 & 12 Vict. cap. 63.)

**SUMMARY**

OF

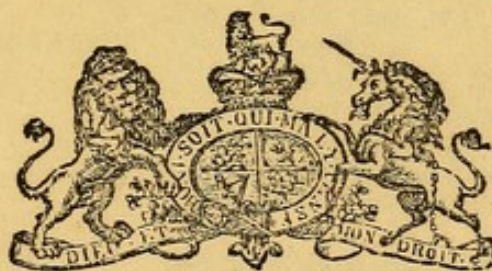
**EXPERIENCE ON DISEASE,**

AND

**COMPARATIVE RATES OF MORTALITY.**

BY WILLIAM LEE, Esq.,

SUPERINTENDING INSPECTOR.



LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,  
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY,  
FOR HER MAJESTY'S STATIONERY OFFICE.

1851.





EXPERIENCE ON DISEASE

COMPARATIVE RATES OF MORTALITY.

BY WILLIAM LEE JOY.

STATIONER AND PRINTER, 15, ABchurch-lane, LONDON.



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PRINTERS TO THE QUEEN, AND TO THE HOUSE OF COMMONS.

FOR HER MAJESTY'S STATIONERY OFFICE.

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## PUBLIC HEALTH ACT (11 & 12 Vict. c. 63.)

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*Summary of Experience on Disease, and comparative Rates of Mortality.* By WILLIAM LEE, Esq., Superintending Inspector.

Whitehall, 25 June 1851.

MY LORDS, AND GENTLEMEN,

I AM now entering upon the most important summary it will be my duty to lay before your Honourable Board. The subject is properly made more prominent than any other in the respective Reports upon the towns visited, and you will therefore permit me to extend this summary beyond the space occupied by those hitherto presented.

In about 40 preliminary inquiries made during the last two years I have invariably inspected the local seats of disease, taken the personal testimony of the poor people residing there, made my own observations, and examined in the aggregate 105 medical witnesses.

It will be obvious that important information has been thus accumulated, which *in extenso* would be very voluminous. This I shall condense to the utmost possible extent, giving merely the principal facts under the head of each place visited.

I shall, in addition, include in tabular forms the vital statistics obtained from the Registrar General and the local Superintendent Registrars, and which are interspersed through the Reports of the several towns.

It will be my duty to compare these local returns with other data, showing the enormous sacrifice of human life now existing in most of the places visited.

I shall then endeavour to lay before you, in as brief a manner as possible, the pecuniary consequences of those evils, which it is the object of the Public Health Act, and of your Honourable Board, to remove.

And I shall offer such conclusions and suggestions as arise from the consideration of the whole subject.

The question therefore naturally arranges itself under three primary heads :—

- I. MEDICAL.
- II. STATISTICAL.
- III. FINANCIAL.



The chief points of illustration appear to be :—

I. The general prevalence of preventible disease and premature death.

II. The enumeration of preventible diseases, and of those aggravated by the absence of sanitary arrangements.

III. The universal identity of the *causes* of preventible disease, &c. in the same and in different towns.

IV. The identity of *diseases* under similar circumstances, but in different towns.

V. Concurrence of all medical testimony as to, 1st, the causes of such disease and death ; 2d, the remedies to be provided ; and 3d, the extent of mitigation attainable.

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### MEDICAL EVIDENCE, &c.

MARKET HARBOROUGH.—Of one part of the town *Francis Wright*, Esq., M.D., said, the complaints of the inhabitants vary with the direction of the wind, the season of the year, the state of the atmosphere, &c., and that bilious complaints, diarrhœa, low fever, rheumatism, &c. always affect some of the occupants. In another part of his evidence he says \*(p. 13),—

“The diseases arise principally from the blood being poisoned, from the secretions not being separated naturally, and principally the liver. The number of cases of the same kind doubles directly

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\* The references to pages throughout this summary, are to those in the reports on the respective towns ; which reports have been circulated in the localities where the facts are well known.



on the occurrence of cold and wet weather. Floods, dampness, fogs, and want of drainage are the causes of a great part of the diseases prevailing here."

In speaking of a very unhealthy court, Quaker's-yard, this witness expressed his conviction that *nearly one half of the disease in that and similar localities (which are numerous in the town) was capable of being removed.*

Bowling-green-row consists of 10 back-to-back cottages. *Mary Cort*, widow, one of the occupants, states (p. 8),—

"*My son has had a fever. I have very bad health. Nearly all the occupants of the row are sick. My house walls are damp. There is a great cesspool in front which receives all the refuse of the houses. It was stopped up some time since, and was then opened, but not emptied; the refuse was only removed from the ends of the drains.*"

ASHBY-DE-LA-ZOUCH.—The prevalent disease here is low typhoid fever; and the drainage, water supply, and other local arrangements connected with health are very defective.

*Charles A. Dalby*, Esq., surgeon, says in his evidence, (p. 16),—

"In the year 1844 typhus fever prevailed in Ashby to an alarming extent. It commenced in autumn and continued through the winter. The number of cases was great, but the intensity of the disease was not more than common. *The disease became in some sense endemic, and has continued to the present time in a somewhat mild typhoid form, but with occasional instances of intensely active and fatal character.*"

He then describes several cases in which the fever was clearly attributable to foul drains, and mentions the fever localities of the town, concluding as follows:—

"I attribute these diseases to the noxious emanations arising from the want of better sanitary works and regulations, and *I am clearly of opinion that the causes of the above diseases, which I have enumerated as existing in the town, are removable by improved drainage, water supply, ventilation, &c.* I believe all my medical brethren here coincide with me in this opinion."

The Rev. *Thomas Fell*, incumbent of Trinity Church, gave some very important evidence showing the close connexion between filth, immorality, and disease. He concludes (p. 17),—

"I have been called to visit many persons sick of fever, and have found fevers most prevalent where the drainage was in the worst state."

EAST RETFORD.—*John C. Hall*, Esq., M.D., says (p. 13),—

"I have ever found attacks of low fever the most frequent, and the most fatal, in the crowded, badly ventilated dwellings of the poor, situate as they are in courts surrounded by animal matters in a state of decomposition."



Wm. Mee, Esq., the Mayor, and also a medical practitioner, said (p. 19),—

“There is no artificial deep drainage; in fact there is little or no drainage at all. The floors of the houses and the foundations of buildings are very damp. It is quite impossible to have cellars in the town; and you see moisture rising up the walls. It is a surprise to me that we have not more disease than we have. I am clearly of opinion that with efficient sanitary arrangements the health of the town would be much better than it is.”

Wm. Allison, Esq., surgeon, says in his evidence (p. 20),—

“The usual diseases are such as appear in all damp marshy situations; including rheumatism, glandular affections, the milder typhus, membranous inflammations, bronchocele or full throat, English cholera, and diarrhœa, malignant typhus, asthma, erysipelas, and ague, intermittent and remittent. When the tone and energy of a system are reduced by illness of any kind there is frequently a great want of reaction; the patient *continues* an unusual length of time in a state of debility or enervation; the men become dejected, and the women hysterical. *I may further remark that when persons have been suffering long from low fever, or from any other disease which has placed them under depressed physical circumstances, I find that an attack of active disease, from which a patient in another locality would easily recover, often becomes quickly fatal.*”

Other medical witnesses gave similar testimony.

After the above statements your Honourable Board will scarcely expect that nothing whatever has yet been done to improve Retford, although the Public Health Act came into operation in the early part of last year.

BACUP.—With respect to this rapidly increasing town, John Crabtree, Esq., M.D., says (p. 6),—

“I have often to visit people in the lower classes of society. The prevailing diseases are continued fever of a low character that frequently passes into the low typhoid form. Sometimes the typhus becomes virulent, and at other times it remains sporadic. This fever is not confined to any particular locality. It prevails at all periods of the year, but is most prevalent in autumn and winter. *These fevers do not necessarily exist on the earth.*”

Dr. Crabtree then goes on to show that these diseases, and others enumerated, are produced by the malaria of decomposing organic matter, and that the provisions of the Public Health Act contain the only remedies for the evils existing.

Dr. Stewart, another local physician, says in his evidence (p. 8),—

“The average duration of life in Bacup might be materially lengthened by improved sanitary arrangements. There is an intimate connexion between disease and dirt.”



Mr. Worrall, a surgeon of the same place, gives similar evidence, and at a second inquiry at Bacup, held after the lapse of twelve months, the whole of the evidence of the medical witnesses was repeated, with additional testimony as to the ravages made by preventible disease since my previous visit.

Notwithstanding these facts, about which there can be no possible doubt, it has been proved before your Honourable Board, by a deputation of millowners, that intimidation and exclusive dealing have been resorted to by persons interested in the continuance of the present evils, and that many hundreds of spurious signatures have been affixed to memorials addressed to you against the application of the Public Health Act.

It will indeed be matter of regret if an opposition thus ignorant and unscrupulous should, after the application of the Act, succeed in preventing its provisions from being carried into effect.

SWAFFHAM.—I might show by evidence that this town is exceedingly unhealthy, but I refer to the second part of this summary for the vital statistics of the parish. There is scarcely a place in the county of Norfolk in so bad a condition, and yet I have been informed that, with one exception, the members of the Local Board are determined to do nothing unless compelled. The first election of Local Board took place on the 25th March 1850.

LOUGHBOROUGH.—In the inspection of the town, and the medical evidence, each of which formed an independent part of the inquiry, I was struck with the remarkable coincidence as to localities. The same places that were stated to be unhealthy I invariably found ill drained, badly supplied with water, and unclean. The following are examples of the kind of information given to me in such places.

*George Lydall's wife said (p. 14),—*

*“ I have had six children, and have lost one boy 10 years of age since we came here. Four of the children and my husband had the fever, and one girl was insensible for seven weeks. There were several other houses in this street and the next that had the fever. Mrs. Linthwaite and her son both died of fever in one of these houses.”*

Mr. Joseph Haywood, manager of Messrs. Cartwright and Warner's hosiery manufactory, said (p. 14),—

*“ The drainage of the whole neighbourhood is very bad, and there is a cesspool a little above which overflows, and stands in*



the channel in front of my door. The drainage from these, and from Queen-street, falls into an open ditch. *I have lost my wife and daughter from fever ; six of the family had it.*

*William Mee* lives in a neighbourhood without any drainage ; the following is part of his statement (p. 14),—

“Three years since we had fever in the house for six or seven months. IT WAS A DEAR FEVER TO ME, AND WE HAVE NOT OVER-GOT IT YET. *There were four of us down at the same time,—myself, a daughter 14 years old, a son 21, and a daughter 15 ; she has never been well since. Before that time she had very good health. She has now four ulcers in her arm. Afterward two other sons took it, making in all six cases. The union surgeon, Mr. Grimes Palmer, saved my life. I thought I was dying.*”

It is painful to listen to these recitals almost everywhere from persons reduced by preventible disease and death from a state of honest independence to poverty ; to witness the occasional outbursts of uncontrollable sorrow while relating their bereavements, and at the same time to see the physical causes of all this misery existing, and in active operation, around their dwellings. The adoption of effectual means for the removal of the evils is in too many instances violently opposed by local authorities, whose real interest and first duty is the promotion of such measures by every means in their power. The poor are helpless, and almost invariably welcome my visits. The opposition to my inquiries, where it exists, always proceeds from the more opulent inhabitants, residing in comparatively healthy neighbourhoods.

*William Grimes Palmer, Esq.*, is the medical officer of the union, and the following is an extract from his evidence. (p. 16.) After describing the localities of disease, he says,—

“Fever is the peculiar disease of all the localities I have named. I have had cases in which it has become intensely active, and fatal consequences have ensued.

“To a considerable extent I concur in the opinion now held by many eminent members of my profession, *that fevers of the typhoid form do not necessarily exist on the earth.*

“There is an intimate connexion between filth and disease ; they are, in fact, cause and effect.”

*Frederick Stevenson, Esq.*, surgeon, makes some statements in his evidence that should be a warning to the more wealthy (p. 17),—

“In many parts of the town you have visited there are abundant causes of disease. The poor are generally the first victims of disease, but when it becomes infectious or contagious the greatest cleanliness is no protection, and it then passes to the dwellings of the more opulent inhabitants. I can give you an instance of this :



In a family in King-street, in good circumstances, six persons were attacked. Two of the children were removed to the Forest, which is a very healthy neighbourhood, and in the family where they were living four persons were attacked, and one died."

After describing the condition of many of the localities of typhus from his experience, he says of one,—

"Low fever is endemic there, and very difficult to cure. On the attack of active disease in such localities persons sink, who in more healthy neighbourhoods would recover."

The practice of giving opiates to infants is very prevalent in towns, especially where females are employed in the staple manufactures of the place, as is the case in Loughborough. I fear the evil is rapidly increasing, and it should be generally known that the sleep produced by the various forms of anodyne, infants mixture, Godfrey's cordial, &c., would be more properly designated *stupefaction*. Many affectionate mothers, who would die to protect their offspring from external injury, destroy the lives of their helpless infants by the administration of these pernicious mixtures; and even when the child survives the period of infancy, it grows up too frequently with a constitution enfeebled, and consequently predisposed to disease. There is reason to fear that few, if any, who have been habitually drugged in infancy, live to enjoy an average degree of health during the ordinary period of existence.

I refer to the Tables for the rates of mortality at various periods of life, and from different causes. It will be seen that, as compared with many other places, there is a very great amount of preventible disease and death.

The Public Health Act came into operation in Loughborough in March 1850, but no sanitary works have yet been constructed. I am not without hope that something may yet be done. The Local Board have appointed a surveyor who is now making a plan of the town.

KNIGHTON.—This borough is situated in a district naturally very healthy, but the same diseases exist as are found in the most unhealthy manufacturing districts, and produced by similar causes. *Henry Warren, Esq.*, surgeon, says in his evidence (p. 6),—

"The fever here is an evil more in extent than in intensity. There has been malignant typhus, but I am not able to state the number of cases within the last three or four years. The more prevalent diseases sometimes assume a serious form, particularly in the Cwm bank, a part of the town which ought to be very healthy."



*Ebenezer Minshall*, Esq., one of the medical officers of the district, says (p. 6),—

*"I do not think that typhus, especially of a putrid form, necessarily exists, but that it is a curse which man inflicts upon himself by the neglect of sanitary arrangements. I know of no disease which, taking an equal number of cases, entails more pain, misery, destitution, and pauperism than does typhus fever in its various forms, and viewing it in all its bearings."*

Mr. Minshall then goes on to show that these epidemic and endemic diseases exist in Knighton, and ascribes them to removable causes.

MILEHAM.—The fact that Mileham suffered very severely from the last visitation of cholera is known to your Honourable Board. I found the recent affliction still exercising a most painful interest in the minds of the inhabitants. It was under such feelings that the application of the Public Health Act was earnestly sought. About one fifth of the inhabitants were attacked, and the deaths in one month were 3·8 per cent. of the whole population. On examining the patients whose lives had been spared I found them, with scarcely an exception, in a state of great physical prostration. Several were left partially deaf; many complained of numbness in the limbs, and of the impossibility of keeping the hands and feet warm; some had scarcely any use of the hands; and all were in a depressed nervous condition, with a low venous circulation, from which they appeared likely to recover very slowly, if ever. Their ability to provide for their dependent families previously admitted of no diminution without serious consequences; and there is too much reason to foresee that this, added to the positive increase of widowhood and orphanage, will entail upon the parish of Mileham, for a long period, a large accession of pauperism, destitution, and misery. Four or five years previously the village was afflicted with typhus,—the same houses were recently attacked with cholera; and only about five weeks before my inquiry influenza was so prevalent as to seize, almost universally, man and beast.

I refrain from quoting the medical evidence, but nothing could be more apparent than the cause of all this calamity. It would have been remedied by the provisions of the Public Health Act; but the awful visitation has passed away, and the serious impression produced by fear has subsided; the sense of personal and collective local responsibility has vanished; and though the Act was applied more than twelve months since, the first local Board of Health elected was pledged to do *nothing*.



GODMANCHESTER.—The testimony of the medical witnesses who have practised in the borough is of much more importance than anything I can say as to the diseases and mortality existing.

*C. J. Woods*, Esq., medical officer of the district, says (p. 8),—

“Both epidemic and endemic diseases are prevalent in Godmanchester. The epidemics are typhus fevers, both mild and malignant, scarlatina, &c. In 1847, from January to March, the fever cases were 19; from March to Midsummer, 6; from Midsummer to Michaelmas, 8; Michaelmas to Christmas, 58; from December to the March following, 47; thence to Midsummer, 14; Midsummer to Michaelmas, 17; and from thence to Christmas, 8.”

This gives a total of 177 cases of typhus fever within two years amongst a population of about 2,200, equal to more than one in twelve of the whole. The witness adds,—

*“In my opinion a considerable portion of the disease with which the town is afflicted is excessive, and removable by proper sanitary arrangements.”*

*Michael Foster*, Esq., surgeon, says (p. 8),—

“The borough is in some sense in the sad condition that what was originally epidemic, and in most towns is never worse, becomes in Godmanchester almost endemic. As far as my experience extends, I have attended more cases of fever in Godmanchester than in all other places put together within my practice, except the union workhouse. My practice extends, more or less, over 44 parishes.”

Another surgeon, *J. T. Sharpe*, Esq., says (p. 9),—

“I attribute that fever, both in its origin, extent, and violence, to the want of sanitary arrangements.”

The Public Health Act was applied in February 1850, but notwithstanding the desperate condition of the place, the Corporation, as the local Board of Health, has done nothing.

EPSOM.—I find great difficulty in condensing the facts accumulated during two years under the head “Diseases and Mortality.” I might quote numerous statements such as the following, which is only selected for its brevity.

Near Durdans, the residence of Sir Gilbert Heathcote, Bart., there is a row of cottages, in one of which two children had scarlatina at the time of my visit. The tenant of the adjoining house said (p. 12),—

“My husband died four years ago of scarlet fever, and I lost a son four months previously. Two others of my children have had it, but recovered. There are no drains; we throw all the refuse at the back. We have no water.”



While my report on Epsom was in the hands of the printers, I received a note from *George Stillwell, Esq.*, surgeon, in which he says,—

“Since your inquiry measles and scarlet fever have prevailed very generally; the latter has been fatal in several instances, *and three cases of death have occurred in the cottages inspected by you near Sir Gilbert Heathcote’s.*”

Five medical practitioners gave lengthened evidence as to the great amount of preventible disease and mortality existing. I make one or two very short extracts.

*Joseph Ward, Esq.*, surgeon, said (p. 13),—

“The prevailing disease of Epsom is low fever, often of a very obstinate character, and difficult to cure. The open ditches and stagnant waters are aggravating causes of disease. The sewerage of the town is generally in a defective state, and injurious to the health of the inhabitants. *I believe that fever has on the whole increased within the last few years. Epsom would be a decidedly healthy place if it had good drainage.*”

*Hubert Shelley, Esq.*, M.B., said (p. 13),—

“I have attended a great many cases of low fever. They were all of a typhoid form, and obstinate. I had between forty and fifty cases in the union workhouse *alone* during the last autumn. The contents of a cesspool were removed, and there were no cases of fever afterwards. From my experience the prevalent diseases of Epsom are of a zymotic character, and will be mitigated by improved sanitary arrangements.”

Another of the medical witnesses stated that fever had much increased within a few years, and I therefore obtained from the Superintendent Registrar extracts from his registers for the years 1841 and 1848, the deductions from which will appear in a subsequent part of this Report.

HOLBEACH.—During my inspection of the town I met with many instances exhibiting the relation of cause and effect between filth and disease.

Red Lion-square contains ten cottages, all of which drain into an open stagnant ditch about seven yards from some of the houses, filled with ordure, dead animals, and refuse of the most revolting description. The place has long been the abode of sickness and death. Mr. Eldred, an old inhabitant, remembers a most fatal visitation of purple small-pox, which destroyed eight or nine persons in one house. Dr. *Welch* says he has had typhus fever there, and that the court is seldom free from sickness, generally a low form of fever. As to the character of the prevalent diseases, he says (p. 11),—

“The most common and prevalent diseases I have met with are intermittent fevers, remittent fevers, and low typhus fever. These



diseases I have found to be most prevalent in places where there was decomposing animal and vegetable matter."

In another part of his evidence Dr. Welch observes,—

"Where there is a constitutional tendency to *organic* disease, such circumstances would develop it, while under a more favourable condition the individual might have enjoyed the ordinary duration of life. The diseases to which the inhabitants are exposed are such as to weaken their constitutions, and render them more susceptible of active disease."

Three other medical practitioners in Holbeach testified to the excessive sickness and mortality, but I forbear to quote them for want of space.

NEARLY TWO THIRDS OF THE POPULATION OF HOLBEACH DIE BEFORE REACHING THE YEARS OF MATURITY.

I am compelled to add Holbeach to the list of places in which the Public Health Act has been long in operation without anything having been done to improve the sanitary condition of the inhabitants.

NEWCASTLE-UNDER-LYME.—The awful condition of this borough at the time of my visit, from the ravages of cholera, was such that any sanitary defect existing in the neighbourhood of any house was almost certain to be fatal to some of the inmates.

According to the returns made to the Registrar General, the annual average mortality for the seven years ending 1844 was 28 to a thousand. The mortality from typhus fever only, additional to this extremely high average, was in 1847 equal to 9·4 to 1,000 of the then population; and the actual mortality from cholera and diarrhoea, in the nine weeks preceding my inquiry, was nearly  $22\frac{1}{2}$  per 1,000 of the population. The pestilence was still raging in the town. Even this does not give an adequate idea of its destructive character in the unhealthy parts of the borough. On dividing the town into two nearly equal parts by a line running north-westwardly, it was ascertained that the mortality in the lower and more unhealthy part had been double that in the upper,—equal  $4\frac{1}{2}$  per cent. of the population.

I adduce one brief extract from the minutes of my inspection :—

*Bridge Street.*—The Rising Sun public-house has a cellar, but it is two feet deep of foul stinking fluid. It was emptied two years since, and has not been emptied since. A cottage in the same neighbourhood has a cellar in a similar condition. *This property is near the parish churchyard,*



*but at a lower level.\** There is an offensive well within four yards of the cellar, the water from which is full of flocculent matter. There are no present means of draining the property. The public-house keeper's wife had died of cholera, and he and two sons had had diarrhoea. The previous occupant died of consumption. Shadrach Dishley, residing next door, had just recovered from cholera; and Samuel Hayes, adjoining on the other side, died twelve months before of typhus fever. The widow has had choleraic diarrhoea.

Six medical witnesses were examined, but I shall only make a few short extracts. They all concur as to the character of the prevalent diseases,—the causes and preventible nature of such diseases, and the remedies to be applied.

*Edward Wilson, Esq., M.D., senior physician to the North Staffordshire Infirmary, said (p. 11),—*

*"I have been resident in Newcastle-under-Lyme 15 years, and am well acquainted with the sanitary condition of the place. The most prevalent diseases of the town are fevers of typhoid character, scarlet fever, measles, upon more than one occasion small-pox, diseases of the respiratory organs, and recently cholera. Typhoid fevers and scarlet fever have been epidemic here. Scarlet fever is now epidemic, more or less. Epidemic influenza has visited us twice, namely, in 1834 and 1847. There is a low form of typhoid fever always prevalent in some parts of the borough. It is occasionally protracted for some weeks, is obstinate, and tends much to undermine the constitution."*

He then goes on to describe the condition of the seats of disease, and says (p. 12),—

*"Where fever raged in 1847 so has cholera in 1849. I draw from this and other facts that the development of fever and cholera has been promoted by the same exciting causes, and CERTAINLY THEY ARE TO A GREAT EXTENT WITHIN THE MEANING OF THE TERM PREVENTIBLE."*

*R. L. Dudley, Esq., medical officer of the union, gives in his evidence a chronological account of the numerous epidemics since the cholera of 1832, and says (p. 13),—*

*"I know the rate of mortality in Newcastle, and am of opinion that it might be materially reduced by proper sanitary works and arrangements."*

*William Hallam, Esq., surgeon, says (p. 14),—*

*"I have been practising here 12 years. Whenever there has been fever or other epidemic in the town I have generally found it in the same localities."*

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\* The awfully crowded state of this churchyard has recently been the subject of a special investigation under the direction of the General Board of Health.—  
W. L.



He then enumerates these localities, and adds,—

“I think that much might be done by the carrying out of the Public Health Act to remedy the condition of these districts, and that with an efficient system of sewerage and drainage, and a proper supply of water, we should not have the excessive mortality we now have in the town. I believe the borough might be made as healthy as any other town.”

I am compelled to omit much that is equally forcible from this and other witnesses, and must refer your Honourable Board to the Tables.

BURSLEM.—The fact that the same parts of towns are the strongholds of all epidemic, endemic, and contagious diseases is remarkably exemplified in Burslem. In 1647 the plague broke out, and spread in the lower parts of Burslem, *about the Hole-house and Hot-lane*. The terror became so great that people were afraid to go near the infected, but supplied food and medicines by leaving them outside the dwellings. It is recorded that Burslem was nearly ruined by the fatal calamity. *I found these localities still among the most unhealthy in the town, although the inhabitants have had the experience of two centuries, proving before their eyes the deadly effects of localized filth.* There were in 1849 no less than 97 cases of cholera and choleraic diarrhoea in Hole-house, Nile-street in its immediate vicinity, and Hot-lane. I might mention many instances similar to the following, as to Robotham's property behind Church-street. There are twelve houses on the two sides, constructed so as to admit of no ventilation in the courtyard. The space between them is  $6\frac{1}{2}$  yards wide, and it is divided midway by a brick wall, against which the privies are built. There are six privies altogether, with open cesspools in a very offensive condition. In one corner of the yard is one of these cesspools, with a wall only a few inches high, and full of liquid ordure. It was within three feet of the door of a house occupied by John Jones. He and his wife had both had cholera three weeks before my visit. At the adjoining house there were two fatal cases; one of them was a person married the Monday but one before, and buried the Monday before my inspection. In another house in the same property a mother and daughter had died, and there had been 13 cases altogether. There was no drainage.

Joseph Walker, Esq., surgeon, says (p. 14),—

“Typhus has been epidemic, and typhoid fever was very prevalent last year. Some of the epidemic diseases may have been caused, and were certainly aggravated, by the want of sanitary arrangements. Influenza would be so aggravated, though I should



say that the cause of influenza was chiefly, if not entirely, atmospheric. Small-pox and scarlatina are now prevalent here, and have been some time; they are greatly aggravated by the low sanitary condition of the town."

He then shows the state of the fever districts and the cholera districts, and says,—

"In many of these places the drainage is very bad, and the accumulations exceedingly offensive, *so that the most filthy locality is the most diseased locality.*"

I regret that I have not room here for extracts from the evidence of Daniel Ball, Esq., and Samuel Goddard, Esq. It is full of important statements as to the excessive disease and mortality in Burslem, but does not admit of partition without weakening its effect.

ELY.—George Cole, Esq., is one of the medical officers of the Ely Union, and has had that office many years. During his examination I handed him some returns made by him to the Poor Law Commissioners. The following is his statement thereupon (p. 14),—

"I have looked at the papers you have handed to me. They are returns which I made 10 years ago to the Poor Law Commissioners as to the then state of some parts of the city. *From that time to the commencement of the present year no material improvement has taken place.* Many of the localities mentioned in those returns are nearly in as bad a state as they were then. *Whatever the prevailing epidemic happened to be, it would be found in those places, whether it were influenza, scarlet fever, or fever of a typhoid character.*"

The Public Health Act has been in operation in Ely three quarters of a year, and the Local Board has within a few weeks only intimated an intention of electing a local surveyor. Nothing whatever has yet been done to improve the sanitary condition of the city.

NANTWICH.—The connexion between defective ventilation, bad water, and want of drainage, as causes, and disease and death, as the direct effects, is so striking in my notes of inspection at Nantwich that I am induced to afford space for one or two brief instances.

At Wych-house-bank, on the borders of the river, there were 20 deaths from cholera within a short period of my inquiry, upon this small spot of ground. In one house 5 persons died. There are 5 tenements without privies. The ordure is put into tubs, and some of the people have to carry



it through their houses once a week or fortnight. *Ann Birtles* occupies one of the houses, and said (p. 9),—

“ My husband died of cholera, and I was ill. I carry the tub through the house weekly, and make a hole in the yard and cover it up.”

*John Malkin*, another tenant, says (p. 9),—

“ We get water for food 150 yards off. We carry the nightsoil tub through the house, and empty it into the river. We also take water for washing and cleaning out of the river. There are no pumps in the neighbourhood.”

Gas-alley is a passage about 4 feet 4 inches wide, with about half-a-dozen houses on one side and high walls and buildings on the other. I spoke to one of the occupants, *Wm. Sharratt*, who said (p. 9),—

“ I have lived here seven years, and pay for house and bedroom 1s. 6½d. per week rent. I have a wife and six children. We all had the fever two years since, and at the next door all in the house had it, and the man and his wife died. My wife has lately had the bowel complaint, but we have escaped the cholera. One died of it next door, and two others in the alley. There were many cases in the five houses. We have no back doors, nor any privies. We get water about 120 yards off. There are no drains but the stagnant channel close to the doors.”

Behind the south side of Hospital-street, at Pall-mall, is a very offensive open stagnant ditch containing nightsoil. A person living in a cottage within 9 feet of it had cholera twice. The back premises of the Vine public house come to this ditch, and the wife and daughter of the occupier both died of cholera.

In Mill-street many of the inhabitants drink river water after it has received the drainage of a large part of the town, and there were 20 deaths from cholera in that street. In one house the father and mother died and left 9 little children.

These facts, selected from a multitude recorded in the same town, are sufficient to prove that death is the natural consequence of breathing an atmosphere charged with the gases produced by the decomposition of town refuse, and drinking water tainted by such refuse. Typhus fever ravaged the town of Nantwich in 1847, and in 1849 there were about 180 deaths and nearly a thousand cases of cholera amidst a population of about 6,000. The deaths from this disease alone were 30 to 1,000 of the inhabitants in the short space of 14 weeks; or about double the present annual mortality of some healthy districts in the country.

*Thomas Williamson*, Esq., the medical officer of the



union, enumerated in his evidence the localities where cholera prevailed in 1832, and then said (p. 11),—

“Those were also the localities most severely afflicted with it during the recent visitation. The town was then in much the same state as to drainage and water supply as it is at present.”

Mr. Williamson then gives a chronological account of numerous epidemics, but the localities where they were most malignant are the same. He concludes that—

“The lives of a great portion of those who have perished by the epidemics which I have named might have been saved.”

This evidence would undoubtedly be equally applicable to most other towns, and yet it exhibits an absence of even *common animal instinct* with reference to the preservation of life that would be incredible if the facts were not proved beyond dispute.

I am not aware that anything has been yet done to improve the sanitary condition of Nantwich, although the Local Board was elected in November last.

LITTON.—Pursuing the consideration of the identity of causes and effects in different parts of the country, there could scarcely be a more remarkable demonstration than that of Litton, a township and village in the High Peak of Derbyshire, at an altitude of more than 1,000 feet above the level of the sea, and with a mountain atmosphere naturally very invigorating.

At Messrs. Bagshaw and others property, which consists of a long row of cottages with a narrow court or passage in front, five houses drain into an open privy cesspool. I found the privy, only a few feet from two of the houses, in a most disgusting condition, so much so that people must stand upon the seat, and the cesspool was reeking with semi-fluid ordure. That it had been long in the same state, and with most fatal consequences, the following facts will show.

*William Marshall*, one of the cottagers, said (p. 6),—

“I have seen it drain out and overflow, and it has laid in a pool in front of my door, and has actually moved with maggots.”

*James Sheldon's* wife, the next door, said,—

“We smell that privy very disagreeable. We have lived here eight years. The doctor complained of it when he attended my children. We had fever in the house last November but one, *and lost three children in less than a month.*”

In this village the victims of fever were chiefly the young. The mortality from one fever had been equal to a proportion of  $67\frac{1}{2}$  to a thousand of the whole population within the short space of 11 months.



GREAT YARMOUTH.—In this town I only quote one instance of a ditch that came under my observation.

*Jonas Thompson*, servant to Messrs. Grout and Company, of the silk mills, lives near this ditch, and said (p. 13),—

“I have lived here about 20 years. The stench from the ditch has got worse within the last few years. I have a wife and six children alive. *I have buried five children since I have lived here, and have a sixth dead in the house now.* Three out of the six died with sore throat. I have had it myself, and last year I was obliged to be at home three weeks in consequence. Mr. Worship, surgeon, told me he believed the deaths of three of my children to have been caused by the ditch.”

*William Burgess*, Esq., one of the union medical officers, who shortly after fell a victim to typhus fever caught in the exercise of his professional duties, enumerated the various epidemics that had visited the town, and said (p. 14),—

“I have observed that scarlatina, typhus, small-pox, and cholera have been more malignant in certain localities than in others.”

He then goes on to name the seats of these diseases.

*John Bayly*, Esq., the other medical officer, states in evidence that he was appointed in 1836, and during the whole of the time he has been in office *all epidemics have appeared in the same localities.* He also expresses the opinion that these diseases might be avoided in such places.

*Charles Aldred*, Esq., a surgeon in extensive practice, speaking of the same diseases, says (p. 16),—

“I am not sure they might *not be originated* by the want of sanitary works, but I believe that they would be propagated and aggravated for want of such arrangements. I believe that typhus may be almost entirely prevented by cleanliness and good drainage.”

He then describes the localities where he has had cases of typhus fever and cholera, and says the water in a very large part of the town is not fit to be drunk.

The vital statistics deduced from the Registers prove that, like very many other towns, the value of human life in Great Yarmouth has considerably deteriorated since 1841.

GAYWOOD is a suburb of Lynn in Norfolk, and contains a large laystall, called the Ash-yard, where the solid refuse of the streets, &c. of Lynn is deposited. Highgate is a collection of houses close by, with a population of about 500, and is a seat of continued and malignant typhus. *John Tweedale*, Esq., M.D., one of the magistrates of Lynn, gave



some very important evidence, from which I can only extract a few sentences (p. 6):—

“I know that the Ash-yard contains animal and vegetable matters in a state of decomposition—bones and refuse meat, cabbages, the scrapings of the streets, &c. Matters accumulated in that way are constantly giving off gases. The effect of those gases is to undermine the constitution, and reduce the health of the people. We have typhus fever there every year. If the system is depressed any attack of disease is more likely to end fatally. I consider that typhus fever and such diseases are preventible, to a very great extent, by improved sanitary arrangements. There are other causes of such diseases,—bad diet, filthy habits, want of ventilation, and the natural weakness or predisposition in the constitution; but even these secondary causes I should expect to find in more powerful operation in such places.”

Several other medical witnesses concurred with Dr. Tweedale. *Henry Smythe, Esq.*, mentioned the numerous cases of typhus fever he had had in those houses recently. In two families he had three in each house, in another house five, and in another four. He adds (p. 8),—

“Most unquestionably, in my mind, these fevers were caused by the impure state of the atmosphere from excessive moisture, and decomposition of animal and vegetable matter.”

**DISS.**—Lynn is at the northern verge of the county of Norfolk, Diss is situate on its southern boundary.

*Mr. Robert Downing*, a spectacle builder, says (p. 8),—

“My own privy is a very offensive place. It smells all over the house when the wind is in the N. E., and I have no means of remedying it. There is another privy at the top of the yard also very offensive. About six years ago I had typhus fever in my house; indeed there were three families had it, and five persons died, two of them my children. We are as bad off for water now as we were then.”

**READING.**—In this populous and wealthy town there is an enormous amount of preventible disease, with all its attendant evils. I must refer generally to the statistics of the tables. I quote also a few sentences from the evidence of some of the medical union officers.

*T. L. Walford, Esq.*, said (p. 25),—

“My official duties have brought me into frequent contact with many of the poor inhabitants of the parish of St. Lawrence. I have observed the very defective state of the drains, the existence of privies where they ought not to be, and in some of the houses very offensive effluvia, and in the appearance of the occupants evidence of a low state of health, and a general depression of the



vital powers. I find that in that class of individuals febrile disorders, and sometimes fever itself, is very prevalent. I have never been free from fever cases, more or less. In 1846 and 1847 fever was awfully prevalent. Its chief haunts in my parish were among the poor residing in the smaller tenements and the courts. I found it most malignant among the people in the worst sanitary condition, and *vice versâ*, until, as a general rule, the wealthy inhabitants almost entirely escaped. These low fevers, and such diseases, are of a class from which the constitution requires a considerable time to recover. I have known cases of three or four months duration. I consider these diseases almost entirely preventible by improved ventilation, efficient drainage, and proper water supply.’

The witness goes on in his evidence to describe the course of different epidemics. Of choleraic diarrhœa he says,—

“ I found it most general and severe in the fever localities.”

He affirms the same thing of cholera, and of scarlet fever remarks,—

“ The severest cases amongst the poor occurred in the fever and diarrhœa localities.”

At the time of my inquiry small-pox was extensively epidemic in Reading. Mr. Walford speaks of it also as “ still following, in its most severe form, the fever track.”

How entirely these statements demonstrate the fact that the poor of our towns are surrounded by evils incompatible with life. The low fevers undermine the constitution, and amidst the close poisoned atmosphere that produced the disease perfect recovery is impossible. So far as these low depressing fevers are concerned the term ENDEMIC has its full meaning. *They have their settled habitation IN AND WITH the PEOPLE.* The term EPIDEMIC, with reference to the other diseases named by Mr. Walford, is not less full of signification. *They come UPON the people*, and seize as their victims the helpless, the depressed, the filthy, and the poor of the endemic districts, and hurry them to premature graves. And yet these epidemics become powerless in neighbourhoods better ventilated, drained, and supplied with water, “ UNTIL, AS A GENERAL RULE, THE WEALTHY INHABITANTS ALMOST ENTIRELY ESCAPE.”

It is not, however, to be supposed that the rich escape the consequences, pecuniary and otherwise, of such a state of things, as the latter part of this summary will clearly show.

*John W. Workman, Esq.*, another of the medical officers, describes the dreadful condition of the seats of disease in St. Giles’s parish, and at the end of the sad catalogue concludes (p. 28),—

“ Wherever the poor people are densely crowded together without drainage there is a locality of disease.”



The following remark from the evidence of *F. A. Bulley*, Esq., (p. 31,) surgeon, contains a strong opinion as to the causes and preventible nature of fever.

“I consider fever in its most extended sense to consist of a series of efforts of nature to rid the system of some poisonous influences which have been accumulating within it, and as *per se* eminently conservative, if these efforts are not interrupted by defective sanitary arrangements.”

The statistics appended hereto not only show that there is an enormous loss of life in Reading as compared with other districts in the same county, but also that its sanitary condition has rapidly deteriorated since 1841.

GAINSBOROUGH.—Scarcely any town that I have visited has been more devastated by all the epidemics of modern times than Gainsborough.

*William Cooke*, Esq., surgeon, showed at the inquiry that about one fourth of the whole mortality of the parish in the years 1846-7-8 were caused by ten epidemic diseases. This was before the great outbreak of cholera. During the same years there were treated by the officers of the Gainsborough Public Dispensary 1,543 cases of disease, and of these above 30 per cent. were of the epidemic class. He gives in a tabular form the localities of 204 cases of fever attended from the dispensary in the same years, and of 35 cases of dysentery in 1848, also of 233 deaths from cholera and diarrhoea in August and September 1849, and of 65 deaths from other epidemics in 1847-8.

A reference to the report on Gainsborough, pages 12 to 17, will show that THESE LOCALITIES ARE ALL THE SAME, WHATEVER MAY BE THE EPIDEMIC WITH WHICH THE TOWN HAPPENS FOR THE TIME TO BE SCOURGED.

Within 50 days the mortality from cholera and diarrhoea alone was equal to the proportion of  $29\frac{1}{2}$  to a thousand of the inhabitants.

He also furnished me with the ages at death of 192 of these victims, from which I find that one half perished in what should have been the most vigorous and profitable period of their lives, namely, from 25 to 55 years of age. The tide of death reached its highest point among persons between the ages of 35 and 40.

The evidence of Mr. Cooke is very important, but too extensive to be quoted without disadvantage here. On handing in one of the returns of localities he said (p. 10),—

“From this return we find that the greatest mortality during the late epidemic occurred *in those yards or courts which are closed*



at one end, and through which therefore there could be no thorough current of air. The first case of cholera I was called to in this town was in Parker's-yard, Bridge-street, and there I found a sewer running under the floor of the house itself in which the patient lived."

*Robert Cooke, Esq.*, father of the witness already named, has been practising as a surgeon in Gainsborough nearly forty years, and was able to trace the history of epidemics back for many years. He enumerated the localities of cholera in 1832, and then pointed out *the same places* as the abodes of influenza, scarlatina, low fever of typhoid character, malignant sore throat, dysentery, diarrhoea, and common and remittent fever. Several of these epidemics have visited the town frequently during his experience, and the localities are those of the recent cholera. He says (p. 19),—

"The town is scarcely ever free from fever of a low type. It has strikingly its favourite haunts, along the course of the sewers, with cesspools, open grates, blocks of privies, and the same localities as I have already given as for the cholera of 1832."

It is a remarkable circumstance from Mr. Cooke's evidence that in the same yard in which cholera first broke out in 1832 the greatest mortality from the same disease took place in 1849. He says,—

"I am so sanguine as to think that these diseases are entirely preventible."

ALFRETON.—This town had been occasionally attacked with fever in past years, but in the month of August 1849 a low typhoid fever broke out, which for its malignity, and the proportionate number of fatal cases, can only be compared with some of the worst localities where cholera was at the same time making such dreadful havoc; while in the long continuance both of the epidemic generally, and the duration of each particular case, its disastrous effects far exceed those produced by cholera.

The medical evidence is very voluminous, and of the same tenor as that from all other towns I have visited. It attributes this, and the other diseases existing, to want of drainage, and great scarcity of even bad water. The following brief statement of one of the inhabitants will be sufficient to show the defective condition of the town, and the lamentable consequences of such a state of things.

*Mr. Thomas Parsons* said (p. 11),—

"I reside in New-street, and have lived there  $3\frac{1}{2}$  years. I am a manufacturer of frames for stocking weaving. We have ten of family, including myself, wife, six children grown up, and two apprentices. The fever entered my house on the 2d of August



last, and has not left us yet.\* Every one in the house has had it. I expect a large bill from the doctor, and the loss to me in money will not be less than 70*l.*, besides all the suffering, trouble, anxiety, and loss of time. We were three months and could not attend to business, my works were entirely shut up for five weeks. I should be glad to pay 10*s.* per annum if I could get a good supply of water. We have none but what we beg and buy. I have given a shilling a barrel of sixty gallons, and I have given even 1*s.* 6*d.* per barrel. It now occupies a boy that I have the greater portion of his time to fetch water, and clean shoes and knives, and such like little jobs. I lived at the bottom end of the town previously. There has also been fever there. During the time I lived there we have had to manage with one bucket of water per day for cooking, cleansing, &c., because it was so scarce. We and our neighbours were compelled to stint ourselves to that quantity. The inhabitants do so now at the same place in the summer time.

"The drainage is also very bad. We have a drain under the house floor, and frequently perceive unpleasant smells from it."

The disastrous effects of this fever in Alfreton have not only been felt in the numerous families that have suffered, but in the whole town. The trade of the place has been greatly depressed in consequence. I was informed that few persons would attend the market there; strangers were deterred from visiting the town, and the sale shops infected were without customers for weeks together. There cannot be a doubt that the effects will be long felt by the town, or that this disease alone will cost Alfreton more than the most efficient sanitary works.

MARCH.—The evidence in this town is similar to that already given, except that the marshy character of the district, with the innumerable open ditches, adds a new ingredient to the cup of human misery.

*Henry Wright, Esq.*, medical officer of the north district, says in his evidence (p. 19),—

"The most common disease is continued fever of a low form. There have been frequent cases when it has become typhoid and malignant typhus. *Generally the low fever is endemic.* The malignant typhus fever has only been in lapsed cases. Intermittent and remittent fevers have been frequent. I have observed an increase of intermittent fever during the last two years over the previous six."

The witness then goes on to describe the prevalence of the usual epidemics,—scarlet fever, measles, influenza, &c., and states that the low fevers are to a great extent preventible. The following brief extract shows the identity of

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\* This was on the 10th of December.—W. L.



locality in all epidemics, and the futility of asserting the existence of any inherent remedial energy among the suffering classes in provincial towns. All my experience proves that the great masses of the people in towns are as helpless and defenceless as sheep appointed for the slaughter.

“Cholera might be prevented to a considerable extent by similar sanitary arrangements to those I have enumerated. The cholera was confined to the lower classes in my district, with the exception of cases of diarrhœa, and about half-a-dozen assuming the mild form of cholera, BUT NO DEATHS AMONG PERSONS ABOVE THE CLASS OF PAUPERS. *I find that the same localities are the chief seats of all these diseases. The fever districts and the cholera districts are identical.*”

The witness then goes on to describe the dreadful condition of a great number of these localities.

The description is taken up by *Henry Calver, Esq.*, the medical officer for the other part of the town. He enumerates many similar localities, and states the inevitable consequences of their condition. I can find room for only one place—*Little London*, of which he says (p. 21),—

“Everything that can tend to lower health, and destroy the lives of the inhabitants, is to be found there in its most aggravated form. The character of the cottages, ventilation, the water, the ditches, privies, roads, and all other circumstances and features of the neighbourhood, are as bad as they can possibly be. *There has been much disease and death there. It is a hotbed of all imaginable evils.*”

After going through the catalogue of epidemic, endemic, and contagious diseases, with their concomitant filth, Mr. Calver says,—

“I BELIEVE THAT THESE DISEASES ARE, TO A GREAT EXTENT, PREVENTIBLE BY PROPER SANITARY ARRANGEMENTS.”

The mortality of March, according to the returns made to the Registrar-General for the seven years ending 1844 was equal to an annual average of 28·5 to a thousand of the inhabitants, and for the seven years ending 1848 equal to an annual average of 27·3 to a thousand. This, as I shall show herein-after, is about double the mortality of some whole registration districts in this country,—districts themselves capable of considerable improvement. The ravages of cholera in March during the year 1849 were very great, much more so than in 1832.

SELBY.—The inhabitants of Selby have been a prey to every indigenous and imported disease. The most fearful epidemics, however, during the last 20 years, have been the Irish fever, and four visitations of cholera. Of the latter



disease 23 persons died in the latter end of 1848, and in 1849, from the 1st of August to the 23d October, 85 more fell victims, making in 12 months 108 deaths from the pestilence out of a population of about 6,000. The rate of mortality in 1849 was about 40 to a thousand of the population. This need not be wondered at when the Committee of Health reported of *only one class of nuisances* existing for want of drainage, that they had found in the town half an acre of nightsoil “exposed to atmospheric influence, constantly emitting its pestilential effluvia, and spreading its desolating influence over all parts of the town.”

The following extract from the minutes of my inspection exhibits, in a striking manner, the consequences of unre-moved filth :—

*Mill-gate.*—Mr. William Standerling’s property,—a foul privy, ashpit, pigs kept at the end of the houses, a large accumulation of manure in the adjoining yard, and a stagnant ditch ; nine houses, *and 6 deaths from cholera.* Miss Proctor’s property,—the yard unpaved and saturated with filth, a large manure heap, water foul with organic matter ; the people say they use it for all purposes. *The cholera visited this property in September last. In the first house the husband, named Abbey, and four children, died in a fortnight, leaving a widow and three children surviving. In the next door William Rosendale and his wife died, leaving six children destitute. The next door but one to that, William Wetherill and his wife died, and left one child an orphan.* Mr. Paver’s yard,—the pump water so bad that the people take for food from the Holme Dyke, into which many drains empty ; privies within four yards of the pump, and all the water and filth from the piggeries actually running in an open channel over the pump well, *7 cases of cholera and three deaths.* One of the recoveries, if such it can be called, is a child that has lost the use of its legs. Mr. Pitt’s yard contains most abominable privies and piggeries, besides other nuisances. The water is very bad. A considerable portion of the inhabitants of this yard are Irish, and the English informed me that the Irish use chamber utensils, and empty them into the untrapped drain. *There were five or six deaths from cholera, and four recoveries, in this yard.* There were many more deaths from cholera in the same street, but I have confined my extract to this particular spot, where the deaths were about 23. The water at Miss Proctor’s property gave, on analysis, 100 grains of solid matter, mostly organic, to the gallon.

It will be observed that there are no fortuitous or accidental circumstances connected with this dreadful slaughter.



The result might have been predicated from the condition of the locality. The two are but connected as cause and effect. The whole catastrophe, even in this extreme instance, might have been prevented. How much more in the less concentrated, but almost innumerable foci of disease, existing in every town I am called upon to inspect.

The following, from the evidence of *John Fothergill, Esq.*, surgeon, shows, that in Selby the poor were the chief sufferers from cholera. There can be no doubt that all other classes, however, suffer extensively from other preventible diseases, in impaired health, and sometimes in malignant disease ending in death,—the children especially. He says (p. 16),—

“I do not recollect any of the class usually called gentry dying of cholera, except one, a flax merchant, Mr. Robert Foster, whose office you have seen to day.\* Among the middle classes a grocer died. All the remainder were among the poorer classes.”

Speaking of the Holme Dyke, the same witness says:—

“I believe that some of the privies drain into it, and I believe that some of the inhabitants take water from the Holme Dyke for domestic purposes, below where these privies enter.”

WISBECH AND WALSOKE.—These two thriving places comprise the town of Wisbech with a population of about 14,000. All the usual evils of bad drainage and bad water exist in their greatest intensity in both places, and with the usual results. Speaking of the condition of New Walsoken, *John Lilley, Esq.*, surgeon, says, in his evidence (p. 6),—

“As a medical man, I connect the disease with the condition of the locality. The fevers have been of a typhoid description; long continued in many cases, and obstinate. In a few instances they have lapsed into a more malignant form, ending fatally. The low fever undermines the constitution, and renders the people more susceptible of active disease. Typhoid fevers are very expensive diseases comparatively; *they are of a preventible kind by improvements in the sanitary condition of the people.*”

*Robert Quigley Wallace, Esq.*, the medical officer, after describing the course of the cholera along the banks of the canal, and in other similar places, says (p. 7),—

“The canal is made the receptacle for the filth of all who will take the trouble of going to it; but many persons throw out their offensive refuse just in front of their doors. There are continual fevers of a low endemic kind in the same neighbourhood. The

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\* This gentleman used as an office the front room of a cottage. Under the room was a cellar having foul water to within three steps of the top. The nightsoil and fluid from an open cesspool in the yard flowed past the door, and was complained of in the street at a distance of thirty yards. W. L.



people in the same places suffer more from small-pox, scarlatina, or whatever disease is going, because they are susceptible of all diseases. The parish is suffering for want of drainage and cleansing ; the refuse is thrown out, and trodden into the earth. There is quite sufficient to account for the diseases which exist.

“There is very little difference among medical men as to the causes of disease for want of sanitary arrangements.”

Among the statements made by the poor, I quote only one from the inspection of Wisbech. Your Honourable Board will recognize the symptoms as being identical with those related from the mouths of poor persons whom I have met with in similar depressing circumstances in other towns.

In Mr. Smeetham's property, *Charles Parker's* wife, who looked very sick, said (p. 27),—

“We pay 5*l.* 10*s.* rent. The house is damp, and I have had very bad health since I lived here, and am under Dr. Whitsed now. I faint away, and am very sick. I have a head-ache ; my appetite is gone, and I have a bad pain in my side at times, which strikes through to my shoulder. I break into cold shivers, and anything sudden makes me start much. My husband has had the ague. I have six children alive, and have buried five. The privy is within six feet of the well. The water is so bad that we cannot wash our hands in it. There are also privies at the back of the wall, and the damp comes through and stinks abominably. The water we use has to be bought, and it costs us 5*d.* per week regularly. The neighbours have all to buy water, nearly all the year round, at 5*d.* each house per week. I should be glad to obtain water at 2*d.* per week.”

*Smith Burman*, Esq., surgeon, proves that the localities in which the cholera was most malignant were the same in 1849 as in 1832. He goes on to say (p. 30),—

“We had in 1847 and 1848 typhoid fever epidemic ; it was worst in the localities I mentioned as those of cholera. Scarlet fever, measles, and small-pox have been epidemic at times in Wisbech. I should not think those three diseases originated, but aggravated, by the want of sanitary arrangements. I have found them in their most aggravated forms in the *Masons Arms Yard, Old Horse Fair, Timber Market, and the two sides of the river.*

“Those are the places where I have most disease at all times.

“I think that these diseases might all be very greatly mitigated, if not prevented ; and that mitigation would extend, not only to the malignancy of the disease, but also as to the number of cases. *The means are,—better ventilation and drainage.*”

For the rates of mortality I refer to the Tables in a subsequent part of this Report. Suffice it to say here that the average annual mortality in the borough of Wisbech for the seven years ending 1844, according to the returns made to the Registrar General, was 30·21 to a thousand of the population.



NORWICH.—The present state of miserable suffering from preventible disease, everywhere, is but the natural and inevitable consequence of past uncontrolled local neglect. It has been clearly proved that the poorer classes are helpless; and the existing condition of towns demonstrates the necessity of an external impulse. It would be easy to show from the data obtained at Norwich that the same localities have been the haunts of pestilential epidemics, and of constant disease, for hundreds of years, without any attempt at improvement. I confine myself however to one instance, *St. John's Head Yard*, in the parish of St. Michael, Coslany, pointed out in the reports of the Health of Towns Commission in 1844 as one of the most unhealthy places in Norwich. The following is the state in which I found it in 1850, after the lapse of six years. (p. 22.)

“The people live mostly in flats, and there is no drainage, except along the surface, to the same place in the river from whence they take water, and at that point the night-soil also goes in when the cesspools from some horrible privies overflow. Water is laid from the works, but not in the houses, and the supply is very inadequate. The houses are crowded with inhabitants, and are very much dilapidated. There is no ventilation. In one instance is a privy under a staircase, common to seven families; and in another, a stable and privy under a house. The pavement is bad, and there are no footpaths. *Of those who happened to be outside their doors in this yard, I noticed six persons with scrofulous affections of the eyelids, and Mr. Garthon, surgeon, said the court was full of fever continually.*”

Who can estimate the aggregate amount of preventible bodily suffering and mortality in this single spot of one city? But there are very many others in the same city, and multitudes in all the towns with which I am officially or otherwise acquainted. I can only find space for a few condensed remarks on the voluminous medical evidence given at Norwich.

*Charles Drake, Esq.*, proves that fever has been endemic in some yards. He has had great experience as one of the medical officers, and states that the poor, especially those dependent on the ratepayers for their support, suffer from fevers which are to some extent preventible by proper sanitary regulations. *He has much less of such disease among those of his patients who are above the rank of paupers.* The inference is, that this fever is a great pauperiser, and that much of the pecuniary loss falls on the ratepayers in the shape of increased rates.

*George Warren Watts Firth, Esq.*, another of the medical officers, deposes that the defective water supply and bad drainage are causes of disease; that improved sanitary arrangements would prevent some diseases, mitigate many



others, and render nearly all more easy to cure, but that compulsory powers are absolutely necessary to effect this desirable object.

*Launcelot Dashwood, Esq., William Cooper, Esq., and Henry Robert Edgar, Esq.,* all district medical officers, give concurrent testimony as to the large amount of preventible disease,—its causes ; and the remedies,—efficient drainage, and proper water supply. The last-named witness expresses a fear that the owners of property would never voluntarily make the necessary improvements.

I meet occasionally with honourable exceptions, but generally I am convinced that owners of house property in towns are anxious to evade the responsibility attaching to their position, and your Honourable Board knows that from this class comes the most inveterate opposition to the application of the Public Health Act.

*W. Bransby Francis, Esq.,* proves clearly the identity between the localities of filth and disease of all kinds in Pockthorpe, which another witness has proved is also the most immoral part of the town. Of scarlet fever, low fever, erysipelas, and measles, he says (p. 30),—

“I think that such diseases are partly preventible, perhaps more in the character than in the number of cases. If such places were clean, and the diseases appeared, they would be in a mild form. I think the means of prevention are, a better supply of water, and better drainage of the houses and yards, and those public ways that are not now drained.”

The evidence of *Walter Christopher Thurgar, Esq.,* is very important. The district for which he is medical officer includes New Lakenham, a suburb containing about 500 houses nearly new, with good internal and external ventilation ; streets wider than usual ; and rarely more than one family to a cottage. The subsoil is good, the air naturally pure, and the altitude above 100 feet higher than the low parts of the city. This is the bright side of the picture. The darker is,—no pipe-water, and very few pumps,—no pavement,—no drainage,—numerous cesspools,—and stagnant channels from which the refuse is evaporated in hot weather to dryness. The deep shadows are,—numerous malignant epidemic diseases.

*James Slapp Garthon, Esq.,* surgeon, is enabled from long experience as a general practitioner to track the course of the various epidemic diseases that have visited the city during the last 16 years, including the first attack of cholera. I cannot give too great emphasis to the words with which he sums up that experience ; “THE LOCALITIES ARE MAINLY THE SAME, WHATEVER THE EPIDEMIC MAY BE.”



This is the experience of medical men who have been long practising in all large towns with which I am acquainted. I only need to couple this with another fact that has fallen within Mr. Garthon's observation, and which is of equal importance :—" I HAVE ALSO NOTICED THAT WHERE THE SUPPLY OF WATER IS MOST DEFECTIVE, FILTH AND SICKNESS, AND CONSEQUENTLY VICE AND IMMORALITY, ARE MOST PREVALENT." He says, further, that to a great extent the diseases mentioned in his evidence are preventible, and that with proper and comprehensive sanitary measures Norwich would become one of the most healthy cities in the kingdom. The parish of Heigham is in a low situation, and in a bad sanitary condition. Mr. Garthon mentions a singular fact worthy of notice (p. 33) :—

"I have observed a very curious effect of mercury in various parts of this city. If given at Heigham, very minute doses will produce salivation, but you may give the usual doses in the higher parts of the city with impunity."

I think this clearly corroborates what I have already stated, that the inhalation of malaria creates a susceptibility of any disease, natural or artificial, by depressing the vital energy that should resist and throw off the attack. Persons in such a state are like a city without walls or garrison, —defenceless and powerless, under the assault of a fierce, relentless enemy.

ALVASTON AND BOULTON.—It might have been expected that the transition from a large city like Norwich to these small parishes, with a united population of about only 700, would have shown a great contrast in everything affecting the health of the people ; but, the same causes being in operation, similar effects are produced. The *Rev. Edward Poole*, incumbent, speaking in his evidence of bad drainage, says (p. 5),—

"At the Alvaston end my parishioners in its vicinity have been all in ill health, and I attribute their sickness, in a great measure, to this drain. Last autumn three of my own family were suffering from low fever, which Dr. Heygate said might be attributed to the foul ditch on the opposite side of the road from my house. One of those sick in my family was removed away by the doctor's order, and recovered his health immediately."

*Wm. Hollis*, Esq., surgeon of the same place, gave evidence as to the nature of the diseases existing, and the means of prevention ; evidence which, with the mere alteration of the names of the localities, would have been equally applicable to Norwich or any other large city as to these small villages.

WORKSOP.—The generally absorbent nature of the soil for some miles around this town, and the systematic and ex-



tensive land drainage, have much conduced to make the climate of the district probably the most salubrious in the North of England. When to this is added the fact, that no injurious trade operations are carried on, your Honourable Board might anticipate that the inhabitants would enjoy a comparatively high degree of health. I am compelled however to say that all the diseases called preventible are vigorously at work. The water supply and drainage are of the most wretched description, and manure heaps, piggeries, foul privies, and stagnant filth, flourish in the immediate vicinity of the houses, and with the usual results.

I have not room for more than one illustration in a town. I select Storey's-yard in Church-walk. In the upper part of the yard is a slaughter-house, on the lower side is a row of five houses, and behind them an inaccessible ditch, between that and the next row, where no current of air can penetrate. The premises contain, in addition, three or four privies, about five manure heaps, and eight piggeries. The situation is low, the yard unpaved, and no proper drainage. *Every one of the five houses above alluded to have been visited by fever, and seven of the inhabitants destroyed.*

*William Beardsall, Esq.*, said in his evidence (p. 12),—

“I should say that Worksop is not drained, and that drainage is very necessary to the health of the people. We have had much low continued typhoid and malignant typhus fever. I consider it in a great measure a preventible disease; the means are,—perfect drainage, ventilation, and cleanliness.”

*Thomas Langley Beardsall, Esq.*, surgeon, after naming and describing some of the seats of disease, says (p. 13),—

“If the organic refuse of the town were removed by proper drainage, I should not expect these fevers to cease altogether, but I should expect to see the symptoms very materially modified. I mean by that, that the cases would not be so severe, and I think it probable that the milder cases would cease.”

The only other medical witness I shall quote is *Henry Hase, Esq.*, the medical officer of the district, who says (p. 13),—

“I am not aware of one cottage house with a supply of water in it. They are not drained. There is not such a thing as a house drain in the town.”

He then enumerates the epidemics that have afflicted the town:—influenza, dysentery, diarrhoea, typhus, measles, scarlatina, small-pox, &c. Diarrhoea, with low fever, is prevalent every spring and autumn. Typhus and typhoid fevers come in cycles of five or seven years, with an awful increase of mortality. He adds,—

“I think that influenza and typhus have destroyed more persons than cholera. I imagine the effects of influenza and typhus would



far exceed that of cholera upon sick societies, &c., because in the former there may be three months continuance, but in the latter only a few hours or days. We have typhus fever every year, but we have only had cholera twice in this country; and therefore *there may be an indigenous epidemic disease more disastrous to the general health and prosperity of a town than a disease of the nature of cholera, AND SUCH I BELIEVE TYPHUS TO BE.*"

ROTHERHAM.—The sanitary condition of this very thriving manufacturing town is very deplorable. *Edward James Shearman, Esq., M.D.*, says in his evidence (p. 12),—

"When the cholera broke out in Rotherham in 1832, my attention was particularly directed to the imperfect state of the drainage of the town, which I then found had been totally neglected for many years. The cholera broke out in the narrow alleys from which there are no drains. The supply of water was so small that it was impossible to keep such places clean."

Of the typhus fever of 1846, he says,—

"The churchyard was in a very offensive state; the supply of water very bad; the whole town very filthy; and an epidemic fever broke out, remained many months, and carried off a large number of persons. I have no doubt that this fever was caused by the malarious condition of the atmosphere."

Again, of the cholera of 1849,—

"In Pool Green, where the cholera broke out last year, there had been for many years an accumulation of drainage from two to three feet thick. There was no possibility of getting rid of it, except by carting it away. I laid two or three informations against the owners of these premises, but no notice was taken of them, nor any improvement made, until *after* the cholera had broken out, and carried off five or six persons in a very few hours."

As to the identity of the foci of disease, Dr. Shearman says,

"Ever since I have resided in Rotherham, I have observed that when any epidemic or infectious disease has broken out, it has always commenced in the low, confined, undrained, and filthy parts, and by far the greatest mortality has occurred in those parts. Amongst children, measles and scarlet fever have been more difficult to manage, and more fatal, in such situations than in others."

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 connexion 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 DENSE 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 analagous 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 con-



ceived 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.*

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 has 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.

The statements of the poor demonstrate the rapidity with which death has been long propagating itself. The evidence of all medical practitioners is, that a great part of its offspring is illegitimate; but the work still goes on, and the innocent and the helpless suffer and die, rather than those who are influential and responsible, and therefore guilty.

The question naturally arises, Is sanitary reform a thing to be accepted or rejected at will by individuals, or even by communities? Is it a subject for a show of hands, when the



persons whose lives depend on the decision are mostly either ignorant, misled, or coerced? Can it be left to the ordinary principles of supply and demand? Is there any parallelism between those public arrangements that are necessary to existence, and private dealings with the butcher or baker,—although these may be equally necessary?

The statements herein quoted give answers to the questions, both as to the necessity for external compulsory interference, the illusory supposition that past neglect is consistent with voluntary improvement for the future, and the futility of applying the principles of ordinary business, and other common incentives of human action, to a subject on which, though surrounded by disease and death in a multitude of forms, “all men think all men mortal but themselves.”

By the constitution of this country, no man is allowed to injure or take the life of another, or even his own life, without being branded as a felon; and therefore *excessive mortality ought to be prevented, by measures compulsory on all parties, without exception.*

IV. I do not conceive it possible to produce more perfect proof of anything, depending upon human testimony, than is given in the foregoing pages to the effect following:—

1. That excessive disease and death is prevalent in all parts of the country, but especially in all towns.

2. That many diseases do not necessarily exist; that some might be entirely eradicated; that with respect to others, the cases that are now malignant would, under proper sanitary arrangements, only appear in a mild form; while those now mild would not occur; and that all diseases and infirmities would be more tractable, and more successfully treated by medical skill.

3. That the causes of excessive disease and death are similar in all towns, and in the different parts of the same town; and that the diseases which create the excessive mortality are the same in all towns, and in the different parts of the same town.

The uniform tenor and concurrence of the medical evidence would be tedious, and might at such length appear to your Honourable Board unnecessary, but for the momentous consideration, that these are the collected statements of more than one hundred persons, in all parts of the country,—unconnected with and independent of each other,—disinterested, and therefore above suspicion;—eyewitnesses of the facts to which they depose;—and competent by their professional studies and pursuits to draw therefrom the conclusions which I have given above.



## 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 borough - Great Bowden - Little Bowden -	Undulating	Gravel, loam, and clay	4,133	Agriculture - -	20	Typhus and low fever.
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	Clarlborough -	Undulating	Clay - -	2,229	Ditto - -	17.94	Endemic fever and epidemic typhus.
1841	Ordsall - -	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 and gravel	11,000	Hosiery and weaving	28	Endemic typhoid and malignant typhus.
1848	Knighton - -	Hilly -	Slaty stone - -	1,417	Agriculture - -	12	Pulmonary, low fever, and 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 and marl -	10,432	Hats, shoes, and silk manufacture.	26	Typhus and all preventible diseases.
1848	Burslem - -	Undulating	Coal, clay, and marl -	17,503	Potttery - -	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 and frame-work knitting.	28.9	Low and scarlet fevers.



1848	Great Yarmouth	Level	-	Sea sand	-	-	26,434	Fisheries, silk, &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, and chalk	-	-	3,461	Ditto	-	18° 2'	Low typhoid fever.
1849	Reading	Undulating	-	Clay, sand, and 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 and all preventible diseases.
1848	Alfreton	Hilly	-	Coal measures	-	-	8,842	Collieries, iron-works, frame-work knitting.	-	20° 35'	Typhus and low fevers, scarlatina, measles, &c.
1849	March*	Level	-	Silt, peat, and gravel	-	-	6,300	Agriculture	-	33° 01'	Ague, cholera, consumption, and typhus fever.
1849	Selby*	Level	-	Loam, clay, and gravel	-	-	6,100	Sail-cloth, &c., maritime.	-	39° 34'	Cholera, typhus, and all preventible diseases.
1848	Walsoken	Level	-	Sea warp	-	-	3,150	Maritime and agricultural.	-	23° 80'	Endemic typhoid fever, ague.
1849	Wisbech*	Level	-	Sea warp	-	-	9,500	Maritime and agricultural.	-	37° 68'	Cholera, typhus, ague, and consumption.
1849	Norwich*	Undulating	-	Gravel and chalk	-	-	64,548	Woolens, silks, and cottons.	-	26° 03'	Typhus, low fever, scarlatina, erysipelas, &c.
1849	Worksop	Undulating	-	Gravel and magnesian limestone.	-	-	6,767	Agriculture and 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 and 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 its various forms of low fever, typhoid fever, and malignant typhus, is the one pre-eminent destroyer of the English people. In the column 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 connexion 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 5 towns with a mortality exceeding 30 to 1,000, but not one of them contains 10,000 inhabitants. In 6 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 in the purely agricultural, from about 11 to 33 in 1,000. In the 5 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.



The printed reports on the places visited show the defective state of the drainage in all of them, but especially in those opposite the names of which, in this table, the highest rates of mortality are placed.

The evidence of the table is therefore to *negative* many preconceived opinions as to other causes of excessive disease and mortality; and to point out *positively* one sufficient cause,—bad drainage.

ACTUAL RATES OF MORTALITY IN TOWNS VISITED.—Table No. 2. shows the proportion of births and deaths to the population in 30 of the places visited; the proportion of deaths under one year old to the births; the proportion of deaths from epidemics; the average age of all who have died, and of all adult deaths; and the proportion per cent. of deaths at various ages to the total deaths in each district.



GENERAL TABLE No. 2.—ACTUAL RATES OF MORTALITY IN TOWNS, &amp;c. visited in 1849 and 1850.

Year.	Parish or Place.	Population.	Rate of Mortality per thousand.	Proportion of Births to the population.	Proportion of Deaths to the population.	Proportion of Deaths under 1 year to the Births.	Proportion of Deaths from Epidemics to population.	Average Age of all who have died.	Average Age of all who have died above 20 years.	Proportion per cent. of Deaths at each interval of Death to Total Deaths in each District.											
										Under				Between							
										1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.	90 and upwards.
1841	Market Harborough	2,433	19.31	1 in 33	1 in 50	1 in 7	1 in 300	Y. M. 33 10	Y. M. 56 3	21.3	27.7	38.3	40.4	2.1	8.5	8.5	10.6	10.6	12.8	4.2	—
1841	Great Bowden	1,265	24.50	40	40	13	200	45 9	60 4	9.7	16.1	26.0	26.0	—	16.1	6.4	9.7	13.0	9.7	19.3	—
1841	Little Bowden	435	9.19	62	100	+	200	45 0	45 0	—	—	—	—	25.0	25.0	—	25.0	25.0	—	—	—
1841	Ashby-de-la-Zouch	5,208	19.77	31	50	6	260	26 4	53 6	26.2	45.6	50.5	58.2	6.8	4.8	6.8	5.8	5.8	7.7	1.9	—
1841	East Retford	2,682	22.	27	46	6	—	34 0	63 11	25.8	41.4	43.1	46.6	25.0	8.6	3.2	8.6	6.9	12.0	12.	—
1841	West Retford	618	12.94	38	77	+	—	39 0	54 0	—	—	—	—	25.0	—	12.5	—	—	33.3	—	—
1841	Clarlborough	2,229	17.94	24	56	15	—	45 2	67 1	15.0	25.0	30.0	32.5	2.5	1.25	2.5	2.5	12.5	22.5	12.5	—
1841	Ordsall	955	10.47	30	95	30	—	40 1	63 0	10.0	10.0	20.0	40.0	7.0	—	—	20.0	11.0	20.0	10.0	—
1841	Swaffham	3,358	22.35	38	45	4	559	26 0	55 0	34.0	49.0	50.0	54.0	3.5	7.0	5.6	5.6	4.5	7.3	5.2	—
1841	Loughborough	10,026	28.	30	35	5	188	23 11	55 9	22.1	47.7	57.2	60.0	12.2	8.5	12.2	7.3	7.3	13.1	9.7	—
1848	Epsom	4,200	19.52	47	51	8	382	40 7	54 1	13.4	15.8	23.2	27.8	1.0	4.9	5.9	6.8	7.8	7.8	2.9	—
1848	Holbeach *	5,000	20.40	28	49	4	+	23 4	58 0	46.0	54.9	60.0	62.0	8.8	7.0	7.0	5.1	7.0	9.6	2.9	—
1848	Newcastle-under-Lyme	10,432	26.	30	38	5	290	27 1	52 7	24.3	42.0	48.7	52.0	6.7	8.6	6.4	6.0	6.2	6.2	2.7	—
1848	Burslem	17,503	27.54	27	36	5	173	24 0	49 10	27.0	45.0	53.7	56.7	8.7	5.7	2.5	3.1	5.7	3.8	5.7	—
1848	Ely Trinity	5,134	30.7	27	32	5	90	21 5	52 0	24.6	48.7	58.8	63.9	9.3	7.1	4.5	4.5	5.1	7.1	—	—
1848	St. Mary	2,357	36.4	25	27	5	71	22 6	55 5	21.0	46.5	58.1	62.8	8.3	3.5	2.3	4.7	3.5	5.8	7.0	—
1841	Nantwich *	5,600	27.50	30	36	5	133	20 8	48 8	21.9	49.0	58.0	61.9	8.3	7.1	4.5	4.5	5.1	7.1	—	—
1841	Great Yarmouth	24,031	20.50	32	49	7	298	33 2	58 6	22.5	34.5	41.2	46.7	6.9	5.5	6.7	6.7	7.7	10.2	8.5	—
1841	Diss	3,461	18.2	26	55	5	865	37 6	59 4	30.1	34.9	34.9	38.1	8.0	3.1	12.7	4.7	4.7	20.6	8.0	—
1849	Reading	22,716	30.0	35	33	4	104	26 4	51 5	18.7	38.4	48.3	52.7	8.0	7.7	7.0	6.5	7.4	6.3	3.0	—
1848	Gainsborough	8,096	34.09	28	29	4	81	32 3	55 3	22.8	37.6	43.8	47.4	9.0	8.3	5.0	6.5	8.3	10.8	3.9	—
1848	Alfreton	8,842	20.35	27	51	6	777	24 3	50 6	27.7	43.3	51.6	56.6	11.6	6.1	6.1	6.1	3.3	10.0	2.7	—
1849	March	6,300	33.01	27	30	4	77	22 6	45 9	24.5	40.8	50.0	55.2	9.6	11.5	6.2	6.7	2.8	5.7	1.9	—
1849	Selby	6,100	39.34	32	25	4	49	28 10	50 5	16.6	34.5	42.5	47.0	8.7	8.7	10.4	8.3	6.6	6.6	3.3	—
1848	Walsoken	3,150	23.80	26	42	4	1,575	22 0	55 0	38.7	56.1	62.7	64.0	5.3	8.0	—	8.0	5.3	4.0	4.0	—
1849	Wisbech	9,500	37.68	29	26	4	65	31 0	58 0	21.4	39.3	46.9	49.7	7.5	7.8	9.0	4.7	6.1	9.7	4.7	—
1849	Norwich	64,548	26.03	32	39	5	+	32 4	57 2	24.3	36.8	42.6	46.4	6.7	6.6	6.9	6.7	8.0	11.6	6.2	—
1849	Workeston	6,767	27.2	28	37	6	157	29 4	53 11	22.7	36.2	45.4	47.0	9.7	4.8	6.0	7.0	7.5	10.8	5.4	—
1849	Rotherham	6,446	22.00	26	45	7	1,289	30 0	55 6	23.2	40.8	52.1	54.2	7.7	4.9	5.6	6.3	10.5	7.0	3.5	—
1849	Kimberworth	5,932	25.9	33	38	5	349	23 0	50 6	25.2	46.7	55.1	55.8	7.1	9.0	5.8	5.8	7.7	5.8	2.5	—

\* This is exclusive of the Union Workhouse.

† The blanks left indicate only the incompleteness of the returns, except in the last column.



I shall have to refer to this table again hereafter, and will therefore make only one or two remarks here. It will be seen that the average age at death of all born is, in a few places, about 40 years, and yet my reports on those places contain the evidence of numerous enlightened medical practitioners proving the existence, in these comparatively favoured places, of a vast amount of preventible disease and mortality. Can it be doubted, when the same column shows that the average duration of life in more than half the places does not reach 30 years, and in several little more than 20 years, THAT THE GREAT MASS OF THE PEOPLE LOSE NEARLY HALF THE NATURAL PERIOD OF THEIR LIVES.

I would also draw attention to the next column, showing a precisely similar result with regard to those who have survived to years of maturity. In some, the average age at death is 60 years, or, 40 years of adult life; but in several, the average age at death is little more than 45 years, or 25 years of adult life.

In the succeeding columns I merely point out, that while in some places about one third of the deaths are under 20 years of age, yet in 15 out of the 30 places more than one half, and in several nearly two thirds of the whole population, are destroyed without reaching maturity.

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 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 dunghheap, 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 breath; in most towns the accumulated filth already percolates to the wells, and pollutes the *water* which the people are compelled to drink.

The following table is an illustration, showing the condition of Reading and its several parishes in 1841, and also in 1849.



TABLE No. 3. PREVENTIBLE EXCESS OF SICKNESS AND MORTALITY, from the Want of Drainage and other Sanitary Measures in the Borough of Reading.

Year.	Popu- lation.	PLACE.	Total number of Deaths in each district.	Total number of Births in each district.	Mortality to a thousand of the population.	Proportion of Deaths to the population in each.	Proportion of Births to the population in each.	Proportion of Deaths of In- fants under one year to the Births.	Proportion of Deaths from Epidemics in each to the population.	Average Age of all who have died in each district.	Average Age of all who have died above 20 years.	Proportion per cent. of Deaths at each interval of Death to total Deaths in each District.											
												Under 1 year.	Under 5 years.	Under 15 years.	Under 20 years.	Between 20 and 30.	Between 30 and 40.	Between 40 and 50.	Between 50 and 60.	Between 60 and 70.	Between 70 and 80.	Between 80 and 90.	90 and upwards.
1841	8,365	Parish of St. Mary -	211	254	25.2	39	32	5	440	Y. M. 33 4	Y. M. 56 11	20.3	34.1	41.2	42.6	8.0	4.7	6.6	10.4	12.3	6.6	8.0	.4
"	4,285	" St. Lawrence -	98	140	22.8	42	30	7	225	26 7	50 5	19.3	37.7	45.9	48.9	13.2	5.1	8.1	8.1	6.1	6.1	4.0	—
"	6,287	" St. Giles -	158	209	25.1	39	30	6	314	28 11	52 0	20.8	39.8	44.3	45.5	13.2	6.3	4.4	8.2	8.8	8.2	5.0	—
"	18,937	Borough of Reading -	467	603	24.6	40	31	6	325	30 10	53 8	20.3	36.8	43.2	45.	10.9	5.4	6.2	9.2	10.1	6.9	6.2	.2
1849	10,100	Parish of St. Mary -	295	254	29.2	34	39	4	100	27 7	55 6	20.3	40.0	50.1	53.2	5.0	6.4	7.7	6.1	9.4	7.1	3.7	1.0
"	4,497	" St. Lawrence -	146	142	32.0	30	31	6	95	22 8	44 9	15.0	32.1	49.3	55.4	11.6	11.6	4.7	4.7	4.7	4.1	2.7	—
"	8,119	" St. Giles -	241	252	29.6	33	32	5	116	26 8	50 5	19.0	40.2	47.3	50.6	9.5	7.0	7.4	8.2	6.6	6.6	2.4	1.2
"	22,716	Borough of Reading -	682	648	30.	33	35	5	104	26 4	51 5	18.7	38.4	48.3	52.7	8.0	7.7	7.0	6.5	7.4	6.3	3.0	—

At page 35 of my report on that town are the following remarks:—

"The life of every human being is shorter by several years, than it was in 1841, and the deaths during the last year are greater than the births. A careful examination of the table will convince any one that an awful deterioration is taking place rapidly in the sanitary condition of the town, and those well acquainted with the locality will be prepared for the statement, that if the cesspool system be continued a few years longer, some parts of Reading will be depopulated and uninhabitable."



The table for the township of Gainsborough includes each year from 1842 to 1848 inclusive. Every column of figures testifies to the rapidly increasing strength and activity of the causes of disease and death.

TABLE No. 4. Township of Gainsborough.

Year.	Population.	Mortality to a thousand of the population.	Total number of Deaths during each year.	Total number of Births during each year.	Proportion of Deaths to the population.	Proportion of Births to the population.	Proportion of Deaths under 1 year to the Births.	Number of Deaths from Epidemics.	Average of all who have died.	Average of all who have died above 20 years of age.	Number of Deaths at each interval of Death.											
											Under				Between						90 and upwards.	
											1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.		80 and 90.
1842	7,032	23.00	162	226	1 in 44	1 in 31	1 in 6	44	34 $\frac{3}{4}$	56 $\frac{1}{2}$	34	19	8	5	17	9	13	5	16	22	13	1
1843	7,087	25.39	180	221	39	32	5	35	22 $\frac{1}{4}$	57	43	29	18	8	9	8	9	11	17	18	9	—
1844	7,102	29.78	214	238	33	30	4	37	26	33 $\frac{1}{2}$	52	53	10	4	15	7	11	16	20	19	6	1
1845	7,182	22.41	161	227	44	31	5	25	26	55	42	22	14	5	6	8	16	8	19	9	12	—
1846	7,255	29.49	214	261	34	27	4	54	23 $\frac{1}{4}$	48	60	40	15	13	12	9	16	10	13	17	6	3
1847	7,268	29.15	212	223	34	32	4	46	32 $\frac{3}{4}$	58	55	20	16	9	13	15	15	11	13	26	18	1
1848	7,304	37.77	276	285	26	25	4	100	32 $\frac{1}{4}$	55 $\frac{1}{4}$	63	41	17	10	25	23	14	18	23	30	11	1



The deaths from cholera and diarrhoea are not included in this table. The rate of mortality in Gainsborough during the year 1849 was equal to  $67\frac{1}{2}$  to a thousand of the population.

This depreciation is not confined to towns in the worst sanitary condition, the same process is also going on in the most healthy I have visited, and from the same causes.

The value of life in Epsom has considerably diminished since 1841. In that year the average age of all who died was 44 years, while in 1848 it was only 40 years and 7 months. In 1841 the average age of all who died above the age of 20 years was 63 years and 7 months. In 1848 it was reduced to 54 years and 1 month. On farther analysing the returns it appears that in 1841, 47·7 per cent. or nearly half of all the deaths were of persons between the ages of 60 and 90, but in 1848 less than one third, namely, 30·1 per cent. of the deaths only took place during the same period of life. Between the ages of 20 and 60, only 19·7 per cent. of all the deaths occurred in 1841, while in 1848 40·2 per cent. were included in that period. No facts could more plainly prove that the sanitary condition of Epsom is much worse than it was; that whereas the bulk of the population formerly lived to old age, a very much increased proportion now dies during what ought to be the most vigorous part of human life.

At Ely, Wm. Marshall, Esq., says (p. 16),—

“The sanitary condition of the city has been getting worse since 1841. The mean mortality of the years 1842 to 1845 was 2·34 per cent., and the mean of the four years ending June last is 2·78.”

In Selby the rapid increase in the mortality is most alarming. The deaths registered in 1845 were 110; in 1846, 123; in 1847, 156; in 1848, 193; and in 1849, 223. A progressive increase of 100 per cent. in 5 years only, with a population nearly stationary.

The returns for the borough of Wisbech were very complete, comprising nine years. I have calculated two averages, one exclusive and one inclusive of the cholera year.

I need not repeat the statements already made. They are strictly applicable to Wisbech. Every column shows a gradual deterioration in the value of life.



TABLE No. 5.—PREVENTIBLE EXCESS OF SICKNESS AND MORTALITY created by the Want of Drainage and other Sanitary Measures in the Borough of WISBECH.

Year.	Population.	DISTRICT.	Mortality per 1,000.	Total number of Deaths during each year.	Total number of Births during each year.	Proportion of Deaths to the population in each year.	Proportion of Births to the population in each year.	Proportion of Deaths of Infants under 1 year to the Births.	Proportion of Deaths from Epidemics in each year to the population.	Average Age of all who have died in each year.	Average Age of all who have died above 20 years.	Proportion per cent. of Deaths at each interval of Death to Total Deaths.												
												Under				Between							90 and upwards.	
												1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.		
1841	8,530	Wisbech	-	219	278	1 in 39	1 in 30	1 in 4	1 in 533	Y. M. 32 0	Y. M. 61 0	33.8	42.4	50.0	53.0	7.0	5.5	6.4	6.0	10.0	6.4	4.5	1.3	
1842	8,650	"	-	321	319	27	27	3	95	26 0	60 0	28.6	49.3	59.8	63.5	7.4	4.6	3.7	3.1	4.0	6.5	5.3	1.5	
1843	8,770	"	-	295	291	29	30	4	237	33 0	60 0	23.7	39.0	45.1	48.4	7.1	6.4	10.5	4.4	6.7	10.8	3.7	1.7	
1844	8,890	"	-	246	364	36	24	5	277	33 0	60 0	29.7	42.2	45.9	47.1	9.7	6.5	6.9	4.4	7.5	11.4	3.6	2.0	
1845	9,010	"	-	219	299	41	30	6	600	33 0	59 0	24.6	38.0	45.1	50.0	10.5	6.4	5.9	3.6	6.4	10.5	6.4	0.4	
1846	9,130	"	-	233	334	39	27	5	194	31 0	59 0	25.7	40.7	45.5	49.0	9.4	6.4	6.4	7.7	7.3	8.6	3.4	1.8	
1847	9,260	"	-	250	309	37	30	4	189	31 0	58 0	28.0	38.4	46.8	52.4	10.0	8.4	3.2	4.8	4.8	10.8	5.2	0.4	
1848	9,390	"	-	326	350	29	26	4	127	29 0	60 0	28.5	48.1	53.0	56.1	7.3	6.1	4.0	4.6	6.1	11.0	5.0	1.5	
1841 to 1848	8,950	Total	-	2,109	2,554	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Average	-	-	-	34	28	4	199	31 0	59 0	27.8	47.4	49.4	52.9	8.4	6.2	6.0	4.7	6.5	9.5	4.3	1.3	
1849	9,500	Wisbech	-	358	329	26	29	4	65	31 0	58 0	21.4	39.3	46.9	49.7	7.5	7.8	9.0	4.7	6.1	9.7	4.7	0.5	
1841 to 1849	9,010	Total	-	2,467	2,873	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Average	-	-	-	32	28	4	161	31 0	59 0	26.9	42.2	50.0	52.4	8.3	6.4	6.2	4.7	6.4	9.5	4.4	1.2	



The only other instance with which I shall trouble your Honourable Board is the city and county of Norwich. The table extends over only three years, but every column shows a depreciation of the value of life.

TABLE No. 6. Mortality in the City and County of NORWICH.

Year.	Place.	Rate of Mortality to 1,000 of the population.	Total number of Deaths in the district during the year.	Total number of Births in the district during the year.	Proportion of Deaths to the population in the district.	Proportion of Births to the population in the district.	Proportion of the Deaths of infants under 1 year to the Births.	Average Age of all who died.	Average Age of all who died above 20 years.	Proportion per cent. of Deaths at each interval of Deaths to Total Deaths in the district.												
										Under				Between								
										1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.	90 and upwards.	
1847	Norwich	21.2	1,310	1,749	47	35	6	39	59	11	21.0	28.4	33.4	36.4	6.1	5.5	8.0	8.7	11.4	14.7	8.1	.8
1848	"	23.0	1,424	1,876	42	32	5	34	57	8	26.4	35.6	40.5	43.3	7.3	6.6	6.9	7.0	9.2	10.9	7.6	.9
1849	"	26.3	1,626	2,007	38	30	5	32	4	2	24.3	36.8	42.6	46.4	6.7	6.6	6.9	6.7	8.0	11.6	6.2	.6



I could easily have produced abundance of additional facts bearing on the same point, but I fear to be thought tedious. I only refer therefore to the following reports:—Great Yarmouth, p. 18; Holbeach, pp. 14 and 15; Burslem, p. 18; Diss, p. 11; March, p. 23; and Worksop, p. 16. The subject is one of the utmost weight, and I felt that it ought not to rest on assertion, or even on slight and partial evidence.

COMPARISON OF TOWNS WITH THE REMAINDERS OF THEIR OWN REGISTRATION DISTRICTS.—I now come to the comparison of the towns visited with other places in a more favourable sanitary condition.

In Table No. 7. I have extricated and omitted the vital statistics of the places visited from the registration districts to which they belong, and have given the rates of mortality for the remaining portions only. If I had been able to analyse the groups of registration districts more completely, the results would have been still more remarkable. For instance, I have in one case been able only to exclude the parish of Holbeach from the group, and the retention of Spalding and Boston in the remainder is unfavourable for contrast.

The same of Woolstanton and Stoke, Ely and Whittlesea, and a number of others in the column where large populations in a bad sanitary condition continue to swell the rates of mortality in the "remainder," after the extraction of the town visited. In several instances, however, the result of these calculations is very striking. I would point out especially the registration districts of Ashby-de-la-Zouch and Market Bosworth, East Retford, Epsom and Chertsey, Newcastle-under-Lyme, Belper and Ashbourne, Selby, Goole and Pontefract, Worksop, Rotherham, where the *exclusion* of the towns visited has the effect of greatly reducing the mortality in the populous districts remaining. I would particularly instance Worksop, where the parish containing 6,767 inhabitants has a rate of mortality equal to 27·2 in a thousand according to Table No. 2., but the remainder of the same district with a population of 26,100 persons has only a mortality of 13·48 to a thousand.

Reading, Great Yarmouth, and Norwich, being registration districts in themselves, are necessarily omitted from this table.



TABLE No. 7. RATES OF MORTALITY in the REMAINING PORTIONS of the same REGISTRATION DISTRICTS as the TOWNS VISITED.

Registration District.		Town visited and excluded from this Table.	Rate of Mortality per 1,000 of the population.	Average Age of all who have died.		Average Age of all who have died above 20 years old.		Proportion per cent. of Deaths at each interval of Deaths to the Total Deaths.											
NAME.	Population.			Y.	M.	Y.	M.	Under				Between							
								1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.	Above 90.
Ashby-de-la-Zouch and Market Bosworth	32,626	Ashby-de-la-Zouch, Parish	17.3	32	10	57	6	22.7	33.5	40.7	45.0	7.2	8.0	5.3	7.0	8.0	10.8	8.1	1.0
East Retford and part of Worksop	26,100	East Retford, Borough West Retford, Parish Clarlborough, Parish Ordsall, Parish	13.48	38	10	69	4	20.8	32.3	40.	44.3	4.5	5.7	3.0	8.2	9.9	11.0	9.9	2.5
Loughborough and Barrow-on-Soar	34,276	Loughborough, Parish	22.96	28	0	56	0	23.0	41.0	53.2	56.1	7.2	6.1	4.3	4.4	6.8	8.1	5.6	.6
Epsom and Chertsey	27,980	Epsom, Parish	18.33	35	5	60	8	14.4	32.1	42.3	44.4	4.4	5.6	6.6	7.0	10.5	12.8	7.4	.6
Holbeach, Spalding, and Boston	67,226	Holbeach, Parish	23.60	26	4	55	10	25.9	42.4	51.3	55.2	7.6	5.2	5.6	6.2	7.0	8.4	6.0	.1
Newcastle-under-Lyme	9,044	Newcastle-under-Lyme, Borough	16.14	25	10	77	4	35.0	43.1	53.4	59.8	2.7	8.2	1.3	4.8	3.4	11.0	7.5	-
Woolstanton and Stoke-upon-Trent	63,091	Burslem, Parish	24.77	22	6	52	7	28.8	48.1	55.0	61.0	6.8	5.6	4.6	7.0	6.9	5.8	2.0	.3
Ely and Whittlesea	52,075	Ely, Trinity } City Ely, St. Mary }	20.62	22	5	56	8	37.9	55.2	61.1	62.4	5.4	2.6	2.7	5.4	8.3	6.8	4.0	.8
Nantwich	28,211	Nantwich, Township	22.11	33	0	58	7	21.8	31.5	41.8	47.2	6.5	8.3	4.5	5.0	6.9	10.5	9.9	.6
Gainsborough, Caistor, and Gainsford Brigg	74,655	Gainsborough, Parish	19.63	29	5	57	6	12.4	36.9	50.1	52.7	8.1	4.5	4.5	5.2	8.0	19.2	6.4	1.1
Belper and Ashbourne	58,051	Alfreton, Parish	18.5	39	10	55	2	18.3	32.8	43.4	48.4	9.0	6.6	5.4	5.4	8.8	8.7	5.4	1.0
North Wiltford and Whittlesea	52,675	March, Township	20.62	22	5	56	8	37.9	55.2	61.1	62.4	5.4	2.6	2.7	5.4	8.3	6.8	4.0	.8
Selby, Goole, and Pontefract	55,889	Selby, Parish	18.69	29	2	61	9	28.5	44.	52.8	55.2	5.8	3.1	3.2	4.4	7.5	11.3	7.5	1.0
Wisbech and Whittlesea	48,925	Walsoken, Parish	20.50	22	6	56	9	37.8	55.3	61.0	62.3	5.3	2.2	2.8	5.2	8.5	7.0	4.0	.8
Wisbech and Whittlesea	52,075	Wisbech, Borough	20.62	22	5	56	8	37.9	55.2	61.1	62.4	5.4	2.6	2.7	5.4	8.3	6.8	4.0	.8
Worksop and part of East Retford	26,100	Worksop, Parish	13.48	38	10	69	4	20.8	32.3	40.	44.3	4.5	5.7	3.0	8.2	9.9	11.0	9.9	2.5
Rotherham	16,405	Rotherham, Township Kimberworth, Township	16.88	30	8	56	0	22.4	22.4	37.1	50.9	9.4	4.0	2.9	9.0	7.5	8.0	6.5	.7







Table No. 8. is a *third proportional* between Tables No. 2. and No. 7. It shows the EXCESS in the rates of mortality in the places visited as compared with the remainder of their own registration districts.

I shall not trouble your Honourable Board with many remarks upon this sad array of figures. An inspection of the table fully proves the truth of the following paragraph from one of the first Reports which I had the honour to present.\*

“The vital statistics of many of our middle class and smaller towns are concealed by the healthy condition of the country parishes with which they are connected; thus the inhabitants of the town of Retford are fain to believe that they live in a most healthy place; but, by analysing the mortuary registers the illusion is dispelled, and it is found that they have taken credit for two years longer duration of life to every individual born than is actually their due, and at the same time have apparently unwittingly deprived the country parishes in the Union of two years of *their* existence.”

Subsequent investigations in nearly all the neighbouring towns have enabled me to carry on the process of analysis to a greater extent, in connexion with Retford and the surrounding district, than almost any other place. I adduce one series of facts, showing a gradual analytical diminution in the rates of mortality, and can state, from the evidence of my own eyes, that, with the exception of the first, these figures are but the exponents of the relative proportions of unre-moved filth. Gainsborough is the nearest town eastward from Retford, and Worksop the nearest town westward. In Gainsborough, as I have already shown, the rate of mortality in the year 1849 was 67·50 to a thousand of the population. In 1848, without any cholera, it was 37·77 to a thousand. In Worksop, not visited by cholera, 27·2. In the parish of East Retford 22. In the town of Retford 17·89. In the whole registration district of Retford 17. In the same registration district, *but exclusive of the town*, 13·48. In the parish of West Retford, which takes in a portion of the town, 12·94. And in the parish of Ordsall, also including a new *unsaturated* part of the town, 10·47.

The most healthy of these places is capable of great sanitary improvement, and I refer to the evidence of William Mee, Esq., surgeon, the Mayor, and also that of T. P. Davies, Esq., and Samuel Marshall, Esq., surgeons, proving the existence of fevers and other preventible diseases in both West Retford and Ordsall.†

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\* Report on East Retford, &c., p. 22.

† *ib.* pp. 19—21.



IS IT PRESUMPTUOUS, WITH THESE FACTS, TO SAY THAT THE INEVITABLE MORTALITY OF THIS KINGDOM IS NOT GREATER THAN TEN TO A THOUSAND PER ANNUM ?

I could produce a similar series of facts connected with the city of Ely, and pointing to a similar conclusion, but I prefer to lay before your Honourable Board another and *internal* mode of deducing the minimum mortality, adopted by William Marshall, Esq., solicitor, and Superintendent-Registrar of that district. The population of each street was taken, and corrected according to the ascertained rates of increase. The number of deaths from preventible diseases were extracted from the registers for a period of eight years. These were then grouped into five districts. Mr. Marshall calculated the rates of mortality to a thousand of the population in each, and, after deducting the deaths from preventible disease from the actual mortality, placed the difference in a third column as *inevitable*. The following are the astonishing results. It must be remembered that these figures are an average of 8 years.

Districts of the City.	Rates of Mortality to 1,000 of the Population.		
	Actual.	Preventible.	Inevitable.
Seats of Disease - -	34 $\frac{1}{2}$	23 $\frac{1}{2}$	11
Water side District -	26 $\frac{1}{2}$	16 $\frac{1}{2}$	10
Bye-lane District - -	25	15 $\frac{1}{2}$	9 $\frac{1}{2}$
Main street District -	23 $\frac{1}{2}$	12 $\frac{1}{2}$	11
The Fens - - - - -	22 $\frac{1}{2}$	9 $\frac{1}{2}$	13
All Ely - - - - -	26	15	11

Mr. Marshall says in his evidence (p. 17),—

“I made a separate calculation for every street in the town, although I have furnished you with them for districts only. *I found among the seats of disease (of which the average mortality is 34 $\frac{1}{2}$ ) one portion of that district, namely, Little London, where the mortality was as high as 45 to 1,000, while in High-street it is but 17 per 1,000.*”

He further directed my attention to the remarkable fact that let the district be ever so unhealthy, or ever so salubrious, *the inevitable mortality is nearly a constant quantity.*



There can be no doubt that a similar analysis of most towns would yield a similar result.

The view thus opened of the actual condition of a large portion of the most helpless of our fellow creatures is very appalling, and carries with it a sense of responsibility from which the consciences of none who are capable of exercising a remedial influence can escape.

I cannot avoid the remark, as a proof of the soundness of Mr. Marshall's views, that Mr. Simon, in his first Report on the sanitary condition of the city of London, presented very shortly after the above evidence was given, had also arrived at the conclusion that the minimum mortality is not greater than 11 to a thousand.

If the above deductions are correct, and I think they cannot be doubted, what shall we think of the enormous loss of life at all periods, indicated by Table No. 8. of only half the towns visited, when compared with the remainders of their own registration districts. Out of an aggregate population of 134,774, this test shows an annual destruction of 1,068 persons.

In Table No. 9. I have shown the preventible loss of life in twenty-six places visited, when compared with groups of whole registration districts in the same counties. By this mode it will be seen that the ascertained loss varies from that of No. 8. in some cases considerably; but the cause is the same, namely, the want of more specific data for comparison than I could obtain. Thus, for instance, the township of Rotherham, and also that of Kimberworth, each containing only about 6,000 inhabitants, are separately compared with a group of whole registration districts containing a population of more than 50,000, and including the towns of Ripon and Knaresborough. There cannot be the slightest doubt that the latter towns, if separated from their own districts, and tried by the same test, would exhibit a similar excess in the rates of mortality at all ages.

THE CLOSER AND THE MORE SPECIFIC THE ANALYSIS, THE GREATER IS THE AMOUNT OF EXCESSIVE MORTALITY DISCLOSED.

The above remarks apply to almost all the table; and yet, notwithstanding the defective tests, it appears that in an aggregate population of 251,830 no less than 2,171 human lives are annually sacrificed, when compared with the doings of death in other whole registration districts, within the same counties, and comprising a total population of 409,868.



TABLE No. 9.—Showing PREVENTIBLE LOSS OF LIFE IN TOWNS AND PLACES VISITED, as compared with certain whole REGISTRATION DISTRICTS IN THE SAME COUNTIES.

Year.	Parish or Place.	Popula- tion.	Name of Registra- tion Districts in the same County, with which compared.	Popula- tion.	Excess in rate of Mortality per thousand of the population.	Average loss of life to every individual.		Under				Between						Annual Excess in number of					
						Y. M.		1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.	above 90.	All deaths	Deaths of adults.	Births.	
						Y.	M.																
1841	Ashby-de-la- Zouch	5,208	Billesdon, &c. - -	41,838	-	9	11	8.3	14.5	11.5	15.6	1.2	-	1.0	-	3.5	4.5	8.4	0.6	18	-	1	
1841	East Retford -	2,682	East Retford, &c. }	39,351	5	1	10	4.6	8.1	2.3	2.6	19.0	3.2	8.5	0.8	-	21.0	3.3	-	14	-	1	
1841	West Retford	618			-	-	-	-	-	-	-	-	-	-	-	-	-	10.2	3.6	-	2	-	2
1841	Clarlborough -	2,229			.94	-	-	-	-	-	-	-	-	-	-	-	-	12.2	3.0	1.1	8.0	-	-
1841	Ordsall -	955			3.62	9	1	5	0	10.4	17.5	9.7	9.4	-	2.6	0.4	1.8	-	7.7	0.1	-	13	-
1841	Swaffham -	3,358	Wayland, &c. - -	48,723	9	12	4	4.4	17.2	18.7	17.6	6.1	1.2	14.2	0.2	-	2.4	0.7	-	90	-	-	
1848	Loughborough	11,000	Billesdon, &c. - -	41,838	.79	7	8	23.0	18.4	15.9	14.1	-	0.9	0.9	2.7	-	1.5	-	-	17	-	2	
1848	Epsom - -	4,200	Richmond, &c. - -	37,532	2.5	10	8	8.0	13.8	14.0	14.9	-	-	-	-	-	-	-	-	105	-	80	
1848	Holbeach -	5,000	Stamford, &c. - -	36,898	10.73	13	9	10.7	16.8	19.0	19.6	-	2.5	0.3	-	-	-	-	-	215	-	40	
1848	Newcastle-un- der-Lyme.	10,432	Penkridge - - -	16,074	12.30	6	8	4.6	10.7	10.7	12.7	-	-	-	-	-	-	-	-	47	-	18	
1848-9	Burslem -	17,503	Do. Do. - - -	16,074	9.3	13	9	10.7	16.8	19.0	19.6	-	-	-	-	-	-	-	-	35	-	15	
1848	Ely (Trinity)	5,134	Linton, &c. - - -	40,341	15.0	5	7	1.1	8.5	10.0	11.6	-	-	-	-	-	-	-	-	23	-	3	
1841	Ely (St. Mary)	2,357	" " }	33,811	4.17	9	10	7.6	14.1	15.0	16.8	-	1.1	-	-	-	-	-	-	106	-	-	
1841	Nantwich -	6,323	" " }		16.1	10	11	7.6	14.1	15.0	16.8	-	1.1	-	-	-	-	-	-	313	-	72	
1848	Great Yarmouth	26,434	Wayland, &c. - -	48,723	4.00	9	9	5.8	8.9	12.6	12.9	0.4	1.8	-	-	-	0.7	-	-	130	-	139	
1849	Reading -	22,716	Cookham, &c. - -	29,798	13.8	9	7	7.7	1.1	15.0	16.8	1.3	5.7	1.3	1.8	-	-	-	-	30	-	71	
1848	Gainsborough	8,096	Stamford, &c. - -	36,898	16.1	9	7	4.5	28	3.7	5.6	-	3.6	4.6	1.8	-	-	-	-	72	-	75	
1848	Alfreton -	8,842	Bakewell, &c. - -	31,319	3.5	10	11	7.6	14.1	15.0	16.8	-	1.1	-	-	-	-	-	-	131	-	2	
1849	March - -	6,300	Linton, &c. - - -	40,341	11.52	5	7	4.5	28	3.7	5.6	-	3.6	4.6	2.8	-	-	-	-	18	-	9	
1849	Selby - -	6,100	Pateley Bridge, &c.	54,183	21.61	9	7	4.5	28	3.7	5.6	1.1	3.6	4.6	1.8	-	-	-	-	153	-	80	
1848	Walsoken -	3,150	Wayland, &c. - -	48,723	5.76	13	1	15.1	23.5	22.4	19.4	-	2.0	4.1	2.8	-	1.6	-	-	492	-	65	
1849	Wisbech -	9,500	Linton, &c. - - -	40,341	16.19	2	9	0.7	4.3	2.3	1.8	-	2.6	2.3	1.5	-	-	-	-	69	-	40	
1849	Norwich -	64,548	Wayland, &c. - -	48,723	7.63	2	9	0.7	4.3	2.3	1.8	-	3.7	2.0	-	-	-	-	-	27	-	16	
1849	Workop - -	6,767	Workop, &c. - -	39,351	10.2	6	6	1.5	2.9	4.6	2.6	-	-	-	-	-	-	-	-	48	-	20	
1849	Rotherham -	6,446	Ripon & Knaresbro'	54,183	4.27	6	3	4.6	9.8	13.3	11.6	0.1	-	-	-	-	-	-	-	27	-	16	
1849	Kimberworth	5,932	Ripon & Knaresbro'	54,183	8.17	13	3	5.1	15.7	16.3	13.2	-	3.9	-	-	-	-	-	-	48	-	20	
	Total	251,830		409,868*																2,171	699	854	

\* In this column the same figures are several times necessarily repeated. The total is however correctly given.



In this table, and also in No. 8, showing the comparative excess of mortality in the towns visited by me under your direction during the years 1848 and 1849, I have endeavoured to connect the places in which the inquiries were made with such other places, for comparison and contrast, that in each instance there should be, as far as possible, similarity of climate, water, occupation, and other natural physical circumstances possibly affecting the duration of life. I have done this with the disadvantage of a separate test for each place, and frequently the districts selected have been in almost as bad a sanitary condition as those which were the subjects of inquiry.

Feeling that it was still desirable to measure the excessive mortality of the towns visited by some one uniform standard, I have prepared Tables No. 10 and 11, which exhibit, in similar columns to those already used, the vital statistics of sixty-one whole registration districts in England and Wales, comprising at the census of 1841 an aggregate of upwards of one million inhabitants. I have taken this exceedingly broad basis in order that it might be perfectly unexceptionable; but it must not be forgotten throughout the argument *that these sixty-one entire registration districts include a great number of towns in a very defective sanitary condition, and that, by analogy from the preceding tables, if the returns had enabled me to exclude all such places, the general rate of mortality would have been scarcely more than eleven to a thousand of the population for a remainder of fully 600,000 persons.*

I have drawn out the average of each column in Table No. 10, and those averages have been used in preparing Table No. 11, which shows the comparative amount of excessive mortality in twenty-nine of the places visited.



TABLE No. 10.—Showing ACTUAL RATES OF MORTALITY IN SIXTY-ONE MORE HEALTHY REGISTRATION DISTRICTS.

Popula- tion.	Name of Registration Districts.	Name of County.	Proportion of Deaths annually to 1,000 of the Population.	Proportion of Births to the popula- tion. 1 in	Proportion of Deaths under one year to the Births. 1 in	Proportion of Deaths from Epi- demics to the popula- tion. 1 in	Average age of all who have died.	Average age above 20 yrs. of all who have died.	Proportion per cent. of Deaths at each interval of Death to Total Deaths.												
									Under				Between								
									1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.	90 and up- wards.	
27,628	{ Glendale, Bellingham, } { and Halkwhistle }	North- berland - }	14.65	1 in 68	1 in 32	1 in 12	406	Y. M. 56 7	Y. M. 56 7	18.5	29.9	38.9	43.1	11.7	6.5	3.7	6.2	7.2	11.2	8.0	2.2
45,996	{ Tavistock and Okehampton }	Devon - }	14.97	67	33	11	523	62 4	62 4	18.3	33.0	38.9	43.0	5.1	3.8	6.8	6.8	10.3	12.9	9.4	1.7
40,979	{ Tregaron, Lampeter, and } { Newcastle-in-Emlyn }	South Wales	14.91	67	37	14	466	60 6	60 6	13.6	22.4	28.5	33.9	9.3	5.9	6.2	6.5	11.1	11.9	12.1	3.0
16,074	{ Penkridge - }	Stafford	15.24	66	39	10	595	57 11	57 11	16.3	28.2	34.7	37.1	9.4	6.1	6.1	7.8	11.8	13.5	6.9	1.2
44,476	{ Axminster and Honiton - }	Devon - }	15.10	66	36	12	556	59 3	61 5	15.6	27.3	34.8	38.9	7.6	5.3	4.9	6.8	9.1	14.9	11.3	1.2
29,195	{ Hendon and Barnet - }	Middlesex	15.44	65	40	10	503	35 6	54 0	15.5	27.7	34.2	37.0	7.1	4.2	10.0	9.8	11.3	11.1	8.2	1.3
31,901	{ Bideford and Holsworthy - }	Devon	15.36	65	35	17	456	40 9	61 1	10.8	25.4	33.5	36.0	7.7	6.0	5.8	6.4	10.2	13.9	12.1	1.9
22,242	{ Aberystwith - }	South Wales	15.60	64	33	14	337	38 3	56 9	18.9	25.7	32.1	37.0	9.2	5.5	7.2	10.7	8.4	11.3	7.5	3.2
38,105	{ Anglesey - }	North Wales	15.66	64	38	10	401	35 8	59 6	16.4	30.7	38.6	43.5	9.2	4.2	5.7	5.9	9.7	9.9	10.3	1.7
25,643	{ Elham and Bridge - }	Kent - }	15.56	64	32	12	475	37 5	59 5	17.1	27.6	35.9	39.9	10.0	4.0	6.0	6.0	11.6	9.8	10.3	2.3
55,395	{ Isle of Thanet and Eastry - }	Kent - }	15.75	64	35	11	490	34 2	56 2	17.5	30.3	34.3	42.5	9.3	7.8	6.2	6.0	8.7	11.0	7.1	1.4
42,604	{ St. Germans and Liskeard - }	Cornwall	15.77	63	32	14	666	42 11	61 3	14.4	22.9	28.3	32.3	8.1	6.0	5.3	7.9	12.3	15.6	11.1	1.5
98,694	{ South Molton, Torrington } { Crediton, and Barnstaple }	Devon - }	15.77	63	37	12	393	40 7	62 2	14.4	26.5	34.1	37.3	6.6	5.3	4.1	7.2	11.7	15.2	11.0	1.5
50,696	{ Dolgelly, Corwen, Bala, } { and Festiniog }	North Wales	15.76	63	36	10	325	40 7	62 0	17.3	28.0	34.3	36.8	7.3	6.6	5.9	6.6	8.2	12.0	13.2	3.5
29,798	{ Easthamstead, Cookham } { and Wokingham }	Berks - }	16.20	62	39	9	489	35 11	57 0	18.0	29.5	35.7	39.8	8.3	6.6	9.1	6.6	8.3	12.4	7.7	1.0
30,183	{ Northleach, Stow-on-the- } { Wold, and Winchcombe }	Gloucester - }	16.36	61	34	8	549	36 4	59 11	21.9	31.8	38.5	41.8	7.3	5.9	4.3	5.7	12.8	13.2	8.5	0.6
75,480	{ Totness, Kingsbridge, and } { Plympton St. Mary - }	Devon - }	16.45	61	37	11	415	38 7	61 0	15.2	28.4	36.6	39.4	6.3	6.4	5.0	7.0	10.3	14.0	10.0	1.5
46,959	{ Pershore, Evesham, and } { Shipston-on-Stour - }	Worcester - }	16.80	60	32	9	546	36 10	58 5	20.5	29.5	37.6	41.0	7.6	7.6	4.8	6.6	11.3	13.0	6.4	1.6
39,280	{ Stockbridge, Andover, } { Whitchurch & Kingsclere }	Somerset - }	16.60	60	38	10	446	39 4	61 8	16.2	28.4	36.5	38.5	6.5	6.2	4.6	5.8	11.7	15.1	9.6	2.0
38,829	{ Williton and Wellington - }	Southampton	16.61	60	37	12	457	38 11	60 5	14.3	25.7	33.9	38.9	7.6	6.4	4.7	7.8	7.9	16.0	9.6	1.1
20,247	{ Brampton and Longtown - }	Cumberland	16.94	59	34	12	368	39 5	62 10	14.9	28.9	36.0	40.1	6.7	4.7	6.1	5.3	8.5	13.7	12.0	2.9
41,424	{ Narberth and Pembroke - }	South Wales	16.85	59	34	11	370	40 0	62 6	15.4	26.9	21.5	39.1	8.6	5.9	4.2	5.0	8.3	11.6	12.5	4.7
47,481	{ Morpeth, Rothbury, Aln- } { wick, and Belford }	North- berland - }	16.89	59	37	12	334	39 5	59 11	13.9	25.5	32.9	37.2	9.0	5.5	5.7	8.0	9.4	12.0	10.8	2.6
37,069	{ Tenbury, Martley and } { Upton-on-Severn }	Worcester - }	17.10	58	41	9	700	41 4	59 6	16.3	22.7	29.4	32.9	7.5	7.8	7.6	7.3	10.6	14.3	10.5	1.6
26,746	{ Ulverstone - }	Lancaster - }	17.68	56	31	11	764	41 8	60 7	16.3	23.9	29.0	33.7	9.7	5.1	5.9	6.4	9.5	18.2	9.7	1.7
1,003,124	Totals.	Averages	16.01	62½	35	11	449	37 5	60 0	16.0	27.5	34.4	38.4	7.8	5.9	5.6	6.8	10.0	13.3	10.0	2.0



TABLE No. 11.—Showing the AMOUNT of PREVENTIBLE LOSS OF LIFE in some of the TOWNS and PLACES VISITED, as compared with the AVERAGES of SIXTY-ONE WHOLE REGISTRATION DISTRICTS containing ABOVE A MILLION INHABITANTS.

Popula- tion.	Name of Place visited.	Excess in the Rate of Mortality to every 1,000 inhabi- tants.	Excess in proportion of Deaths to the popula- tion.	Excess in pro- portion of Births to the popula- tion.	Excess in pro- portion of Deaths under 1 year to the Births.	Excess in Deaths from Epidem- ics.	Average loss of life to every individual born.		Average loss of life to all above 20 years old.		Excess per cent. of Deaths at each interval of Death.								Annual Excess of all Deaths.			
							Y. M.	Y. M.	Under				Between									
									1 year.	5 years.	15 years.	20 years.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.		80 and 90.	90 and above.	
4,133	Market Harborough	4	1 in 250	1 in —	1 in 50	1 in 1,920	Y. M. —	Y. M. 3 9	—	—	—	—	—	—	6.3	1.7	4.2	2.2	—	—	16	
5,208	Great Bowden		3.76	275	276	15	*	11 1	6 6	10.2	17.1	16.1	19.8	—	—	—	1.2	—	—	—	—	19
6,484	Ashby-de-la-Zouch		1.88	610	120	90	*	—	0 6	3.0	2.6	.9	1.6	—	—	—	—	.9	—	—	—	12
3,358	East Retford	6.34	158	—	7	—	11 5	5 0	18.0	21.5	15.6	15.6	—	—	1.6	—	.2	1.0	—	—	21	
11,000	Swaffham		12	83	210	10	330	13 6	4 3	6.1	20.2	22.8	21.6	—	1.1	—	—	—	—	—	132	
4,200	Loughborough		3.51	280	—	40	2,360	—	5 11	—	—	—	—	4.4	2.6	6.6	.5	—	—	—	15	
5,000	Epsom	9	111	140	7	*	14 1	2 0	30.0	27.4	25.6	27.6	—	—	.3	—	—	—	—	—	45	
10,432	Holbeach	10	100	210	10	815	10 4	7 5	8.3	14.5	14.3	13.6	1.0	—	—	1.6	—	.4	—	—	104	
17,503	Newcastle-under- Lyme.	11.53	87	118	10	280	13 5	10 2	11.0	17.5	19.3	18.3	—	2.7	.8	—	—	—	—	—	202	
7,491	Burslem	16.56	60	118	10	99	15 7	6 9	7.4	20.5	23.2	25.1	.8	—	—	—	—	—	—	—	124	
6,323	Ely	11.49	87	210	10	189	16 9	11 4	5.9	21.5	23.6	23.5	.5	—	—	—	—	—	—	—	73	
26,434	Nantwich	6.39	157	380	23	900	3 10	1 6	6.5	7.0	6.8	8.3	—	—	—	1.1	—	—	—	—	169	
3,461	Great Yarmouth	2.19	460	101	23	—	—	0 8	14.1	7.4	.5	—	.2	—	—	—	7.1	—	7.3	—	7	
22,716	Diss	14	71	—	10	135	11 1	8 7	2.7	10.9	13.9	14.3	.2	—	—	—	1.1	—	—	—	318	
8,096	Reading	18.08	55	140	7	99	5 2	4 9	6.8	10.1	9.4	9.0	1.2	2.4	.5	—	—	—	—	—	146	
8,842	Gainsborough	4.34	230	118	15	—	13 2	9 6	11.7	15.8	17.2	18.2	3.8	—	.5	—	—	—	—	—	38	
6,300	March	17	59	118	7	93	14 11	14 3	8.5	13.3	15.6	16.8	.8	—	.6	—	—	—	—	—	107	
6,100	Selby	23.33	43	380	7	55	8 7	9 7	.6	7.0	8.1	8.6	.9	—	4.8	1.5	—	—	—	—	142	
3,150	Walsoken	7.79	128	101	7	—	15 5	5 0	22.7	28.5	27.3	25.6	—	—	—	1.2	—	—	—	—	24	
9,500	Wisbech	21.67	46	172	7	76	6 5	2 0	5.4	11.8	11.5	11.3	—	—	—	3.6	1.2	—	—	—	205	
64,548	Norwich	10.02	100	380	10	*	5 1	2 10	8.3	9.3	8.2	8.0	—	—	—	1.3	—	—	—	—	647	
6,767	Worksop	11.19	90	140	15	240	8 1	6 1	6.7	8.7	11.0	8.6	1.9	.7	—	.6	.2	—	—	—	75	
6,446	Rotherham	6	166	101	23	—	7 5	4 6	7.3	13.3	17.7	15.8	—	—	—	—	—	.5	—	—	38	
5,932	Kimberworth	9.89	101	570	10	1,570	14 5	9 6	9.2	19.2	20.7	17.4	—	—	3.1	.2	—	—	—	—	58	
259,424	Total.	10.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Total	2,737	
	Average	10.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

\* From those marked thus no returns were obtained as to the Deaths from Epidemics.



In making one or two observations on the results, I must premise,—

1. That the places to which your Honourable Board sent me include towns comparatively healthy, as well as some that are unhealthy;—places very various in size;—and situated in all parts of the country. They may therefore be considered as a fair selection of the condition of English towns.

2. The million people with which they are here compared also live in all parts of the country, where no sanitary improvements have been effected; and many, it cannot be doubted, are the inhabitants of towns in as defective a condition as some of those in Table 11.

3. I have shown by facts and arguments, which I think are indisputable, that the *inevitable* mortality of the kingdom at large is not greater, *but most probably less*, than the proportion of 11 to a thousand annually of the population; and,

4. I find that the excessive mortality in the towns visited as compared with Table No. 10. is equal to a proportion of 10·55 to a thousand annually.

I CONCLUDE, NOT ONLY WITH RESPECT TO THESE TOWNS, BUT TO TOWNS GENERALLY, THAT HALF THE ATTAINABLE PERIOD OF HUMAN LIFE IS LOST TO ALL WHO ARE BORN.

I have only further to direct the attention of your Honourable Board to the columns showing the excess per cent. of deaths at various intervals. You will perceive that in the towns visited the population are killed off very rapidly. The work of extermination is almost completed under twenty years. The columns representing the excess to that point are crowded with figures. The survivors to adult age are comparatively few and scattered. The battle of life is over, and lost; and the latter columns attest that the excess is now on the side of the million inhabitants of the sixty-one more favoured districts; in which there yet survive two thirds of all born.

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 connexion 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 probably not greater than the proportion of 10 to a thousand 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 a thousand.

IX. That the deduction of the deaths arising from preventible diseases from the whole deaths leaves an inevitable *mortality* of only 11 to a thousand; 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.

XII. 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. The present subject enters into all the relations of life, individual, social, civil, and national, and the amount of taxation everywhere levied for this excessive sickness and death, con-



stitutes in the aggregate the most oppressive burden ever laid on a people.

The amount of deprivation from long-continued preventible sickness and bereavement is greater than can be calculated. The responsibilities and debts incurred at such times are carefully concealed from the public eye and knowledge, but the subsequent life of struggling and embarrassment is not the less real, because the world is unacquainted with it. The straitened circumstances, from the premature breaking-up of family and social ties, the gradual descent from the respectability of independent industry down to poverty, is only seen and felt by the community when it ends in pauperism. The total money loss connected with the words "widowhood and orphanage" is not to be appreciated by the increase of public rates.

Here and there isolated facts are brought to light in evidence, showing what a large proportion of the funds belonging to medical and other charities are expended on cases of preventible sickness; from which it may be concluded, by analogy, that from one third to one half of all the gratuitous assistance of this nature given by public institutions, and even private benevolence, might be saved by that prevention which is better than cure. This, however, like the former consideration, admits not of such minute investigation as to be stated in pounds, shillings, and pence.

Another consideration, almost incapable of being reduced to figures, but of great magnitude, is the extent to which the passion for intoxicating drinks, opium, &c. is developed and increased by defective sanitary arrangements. Where the emanations from town refuse are mixed in the atmosphere with a large quantity of aqueous vapour, I find that stupefaction is sought for in opium. In equally tainted, but more dry atmosphere, beer is chiefly used to produce the same effect. In manufacturing towns gin is taken by those who have little bodily exertion, and beer by the labourers and artizans. I would not be understood that habits of intoxication are wholly due to a defective sanitary condition, but no person can have the experience I have had without coming to the conclusion,—that *unhealthy* and unhappy homes,—loss of *vital*, and consequently of *industrial* energy,—and a consciousness of inability to control external circumstances, induce thousands to seek escape from miserable depression in the temporary excitement of noxious drugs and intoxicating liquors. They are like the seamen who struggle awhile against the evils by which they are surrounded, but at last, seeing no hope, stupify themselves with drink, and perish. The process is only in the former case more



gradual than in the latter; the results are the same. I could have produced evidence from my Reports on this point, but I think it will not be disputed that if the enormous cost of drunkenness and opium eating could be estimated in figures, a great sum would have to be put down as "*Pecuniary loss in consequence of defective sanitary arrangements.*"

The amounts paid by Boards of Guardians as for preventible sickness and mortality, large as they are, do not fairly represent the *legal* burdens on the ratepayers. Much of what was at first casual becomes permanent relief. There is a natural repugnance among Englishmen to the receipt of parish relief; but when men have once sunk by sickness to the condition of paupers, they become unconcerned, lose their independence, and too frequently remain paupers. Their offspring are degraded a step further, from never having known the blessings of independent industry, and pauperism becomes hereditary.

If it be true, as I have shown, that the inevitable mortality of the country is only about one half the existing rates in towns, the enormous sums based upon those rates, and paid as premiums upon policies of Life Assurance chiefly by careful, provident, professional men without fortunes, ought to be divided into two parts, and a large per-centage placed under the head, "*Pecuniary loss for want of proper sanitary arrangements.*"

The same argument is applicable, in a still stronger sense, to the tens of thousands of sick and friendly societies in all parts of the country, the great majority of which are not in a prosperous state, because based upon higher principles of health than exist in the localities. After existing 30 or 40 years, and paying according to rule for excessive disease and mortality, the surviving members find, when approaching old age, that their funds are rapidly declining,—that young men decline to join them,—the society is broken up, and those who have contributed out of their small earnings during the greater portion of their lives, in the hope of having something to fall back upon at the last, have no other resource in old age but the workhouse.

The condition and prospects of these societies deserve the special consideration of a paternal government. The inquiries which it has been my duty to make have not permitted such an investigation as would enable me to tabularize the "*pecuniary losses for want of proper sanitary arrangements;*" but the importance of this part of the question will be manifest when it is considered that, among the poorer classes, and a great portion of the middle classes, nearly all



the adult male population of the country are members of such societies.

On several of these points I feel it my duty to lay before your Honourable Board the statements made during the inquiries.

### POOR RATES INCREASED BY PREVENTIBLE DISEASE, &c.

BACTUP.—*Dr. Stewart* (p. 8),—

“The poor rates would be reduced by the improved health and well-being of the inhabitants; and to a further extent when we consider the amounts now paid as relief to widows and orphans in consequence of the excessive mortality.”

LOUGHBOROUGH.—*William Grimes Palmer, Esq.*, medical officer of the union (p. 16),—

“The poor rates would certainly be reduced if efficient sanitary measures were carried out.”

GODMANCHESTER.—*Richard Cross, Esq.*, superintendent registrar (p. 9),

“The amount of money expended in out-door relief to the poor of Godmanchester has an intimate connexion with the low state of health of the inhabitants, being, in the year 1842, 679*l.*; and in 1847, during a portion of which year the fever prevailed, it increased to 1,058*l.*; and in 1848 it amounted to 997*l.* The increase upon the year 1842 amounts to upwards of 50 per cent from fever alone. I might observe that that amount of increase would not be confined to the ratepayers of those years, but would form a permanent increase of the poor rates of Godmanchester, inasmuch as the contribution to the common fund charges of the union are based upon the average expenditure of each parish for three years, and consequently Godmanchester, in its future contributions to this fund, would pay an increased proportion, owing to the excess of sickness in those years.”

HOLBEACH.—The Rev. *James Morton*, vicar, and chairman of the board of guardians, says (p. 13),—

“I am aware that the mortality of Holbeach is very excessive. The poorer classes make no provision for sickness; when attacked they immediately apply to the union. They are generally relieved as out-door casual poor. The payments for such purposes form a considerable item in the annual accounts. If the sanitary condition of the inhabitants could be improved to the average standard the poor rates would be much reduced. The poor rates would also be further reduced by the less amount paid on account of widowhood and orphanage.”



BURSLEM.—*Samuel Goddard*, Esq., one of the medical officers of the union (p. 17):—

“I can have no doubt that the construction of proper sanitary works, with the consequent improvement in the habits of the people, would tend much to decrease the amount of the poor rates.”

*George Baker*, Esq., chairman of the board of guardians, says (p. 19),—

“From July last to the 22d September we had 156 applications to the parish officers on account of cholera at a cost of about 250*l.*, including the expense of interments. I am convinced that the permanent charge entailed upon the parish will not be less than 300*l.* per annum, and it will certainly last seven years. *I expect also from the same cause a permanent accession of pauperism.* In addition to this there would be the payments for excessive typhus, and other preventible diseases, which largely increase the burdens of the ratepayers.”

LITTON.—*Mr. John Baker*, poor law guardian, says (p. 7),—

“The poor-rates have averaged 3*s.* 6*d.* in the pound. That will make from 350*l.* to 400*l.* per annum. The whole population of the township is rather more than 800. It may have slightly increased since 1841. The amount would be nearly 10*s.* for each man, woman, and child in Litton. As far as my knowledge extends, most of the deaths from fever were those of children. Many of them were buried at the expense of the township.”

NANTWICH.—*Thomas Williamson*, Esq., medical officer of the union (p. 13):—

“If the health of the town were raised, the poor rates would be reduced in amount, and that not only in the cost of sickness, but for medical attendance, and the great permanent charges on the rates for widowhood and orphanage, resulting from excessive deaths.”

READING.—*Timothy L. Walford*, Esq., one of the union medical officers, speaking of epidemic typhus, said (p. 25),—

“The poor-rates were considerably drawn upon, not only for medical relief, but also for casual relief. I have no doubt that many were brought upon the parish who had not been previously paupers. The rated inhabitants have a great interest in sanitary improvements, even in the reduction of poor rates.”

GAINSBOROUGH.—*Robert Cooke*, Esq., surgeon, says (p. 19),—

“Fever is a very expensive disease; if the head of a family is attacked, and a poor man, he will certainly lose five or six weeks before he can recover and regain strength for labour. Some of the poor people have credit, and get into debt; they lose their independence, and finally become burdensome to the parish; and, of course, *are more likely to become paupers again.* There are 137 orphans caused by the late visitation of cholera *alone.* Some of these are chargeable to the parish, and all are in a state of dependence.”



MARCH.—Mr. *Thomas Tusting*, clerk to the board of guardians, had prepared a table showing the amount of pauper sickness and mortality in the year ending Michaelmas 1849. It appears that out of 986 paupers relieved during that year, 446, or nearly one half, were cases of sickness “likely to be influenced by local causes.” He gives the number from each disease, and adds (p. 22),—

“The total number of cholera cases in March was 140, deaths 69; diarrhœa 492, deaths 4. The widows and families brought upon the township by the cholera are numerous. There are 9 widows and 17 children, costing at present 2*l.* 9*s.* weekly, and they are likely to do so for a long time to come.”

WISBECH.—*Smith Burman*, Esq., medical officer of the union, says that during one epidemic he received between 300*l.* and 400*l.* for his attendance on sick paupers, and that in 1849 the guardians paid him 50*l.* for extra services in addition to his salary. He adds (p. 31),—

“There is a great number of widows and orphans left chargeable to the parish. There is a *reflection* of the excessive disease and mortality thrown upon the inhabitants in the shape of increased poor rates.”

Mr. *John Gardiner* of the same town says (p. 32),—

“As to the increase of rates from the cholera, the amount of the call by the board of guardians for the last half year exceeded the corresponding half of the previous year by 400*l.* That is admitted to be the prominent cause, notwithstanding the large decrease in the price of everything supplied to the house.”

WORKSOP.—*Henry Hase*, Esq., medical officer of the union, speaking of fever, says (p. 14),—

“It is within my experience that many persons have been thus brought upon the parish who would not otherwise have become paupers. A large proportion of the poor rate is obtained from the land. If the rates were reduced therefore by sanitary improvements, the farmers would be benefited in proportion more than any other class of ratepayers.”

I could have adduced much more evidence on the same point, but this summary of experience has already exceeded the limits originally intended. I think it must be evident that large sums are constantly levied upon the inhabitants of this country under the name of poor rate, which ought more properly to be called “Fever Tax.”



## PECUNIARY LOSS TO CHARITABLE INSTITUTIONS AND PRIVATE BENEVOLENCE.

Under this head I shall only quote two or three instances, for the purpose of suggesting to those who may read this summary that the statements would be generally applicable to all other places.

GAINSBOROUGH.—*William Cooke*, Esq., surgeon, proves in his evidence, and by tabular forms of the specific diseases, that the medical officers of the public dispensary treated 1,543 cases of diseases in the three years ending 1848; that 204 were cases of fever, and fully *one third* of the 1,543 were diseases of a preventible nature. This was before the outbreak of cholera.

SOUTHBOROUGH.—*Mr. John T. M. Ware*, scripture reader, speaking of a very dreadful visitation of typhus fever in a row of four cottages, caused by a foul privy and polluted well, which might have been remedied for a mere trifle, says (p. 8),—

“There have been upwards of twenty cases and five deaths. In bad cases the patients have generally kept their beds from three to four weeks; and some are left with coughs, one of whom has since died of consumption, leaving three children dependent on the parish. There has been a large sum distributed in private benevolence. At first nurses and assistants could not be obtained to attend the sick, especially in one of the houses. The nurses have been paid by private subscription. Taking all the circumstances into consideration, the disease has been of a very costly nature.”

SELBY.—During the cholera in 1849 a public subscription was entered into for the relief of the sick and dying, and the amount expended in one month was 228*l.* 12*s.* 0½*d.* The sub-committee report that they had visited 941 houses, relieved 552 families, and discovered upwards of 2,000 cubic yards of nightsoil in the vicinity of the houses. The first part of this summary shows the *preparation* that had been made for such a calamity as cholera by the accumulation of decomposing matters in those parts of the town afterwards most severely attacked.

ROTHERHAM.—*John Foster*, Esq., house surgeon to the public dispensary said (p. 14),—

“From January 1847 up to July 31st 1850, 2,121 regular patients have been attended to at the dispensary, and 1,446 casual cases have been relieved. Of the 1,446 casual cases about 480 were cases of diarrhoea, dysentery, and English cholera, which occurred between the months of September and October 1849.



Of the 2,121 regular patients, 757 have been diseases of a preventible character, viz., fever of a typhoid character 307; diarrhœa, dysentery, and English cholera, 181; scarlatina 79; measles 34; small-pox 18; dyspepsia, chiefly induced by residing in unhealthy localities, 134; Asiatic cholera, 4. There are seven or eight medical men, three of whom are parochial surgeons, and who of course will have had a certain amount of diseases of a preventible character. *The cases of disease I have mentioned are what have come under my notice as dispensary surgeon.*"

From the above it will be seen that above *one third* both of the regular and casual patients were suffering from preventible disease. This is the same proportion as at Gainsborough, and I think it more than probable that a similar result would be found on examination of all dispensaries. In other words, that one third of their funds is expended as "pecuniary loss from defective sanitary arrangements."

### PECUNIARY LOSS TO SICK CLUBS.

If I were to bring before your Honourable Board the whole of the evidence on this point alone, it would occupy nearly half the present space of this summary. Under the present high rates of mortality the ultimate fate of these societies is becoming apparent, and those who have imagined through life that they were investing what would be a competency, upon which they could fall back when able no longer to labour, feel great anxiety now at the prospect of destitution in old age. Before giving a few brief quotations I must premise, that during the inquiries I carefully avoided very specific questions as to the names of societies in a declining state, because the promulgation of the fact that any particular society was falling off would be an immediate deathblow to it. For the same reason some little reservation will be observable in the statements of the witnesses.

BACUP.—Dr. *Stewart* (p. 8) :—

"I have heard persons here say that the societies with which they are connected are in a declining state. I have not the least doubt whatever that improved sanitary arrangements would better their condition."

LOUGHBOROUGH.—W. G. *Palmer*, surgeon (p. 16) :—

"I am medical officer of twelve or fourteen sick societies. They are founded on principles of average health, and not on principles of sickness, as they most decidedly ought to have been. Some of them are in a declining state. I know of instances in which they have been obliged to increase their contributions in order to keep up the sick pay."

F. *Stevenson*, Esq., surgeon, of the same town (p. 18) :—

"I am medical officer to five sick societies. At present the



contributions of some of the sick clubs are not sufficient to meet the demands on the books. I believe it is a fact that a sick society in Loughborough, founded on calculations of average health, has been compelled to increase the periodical contributions of the members, in order to provide for the actual amount of sickness and mortality in existence. Sick societies have decidedly a great interest in the sanitary improvement of the town."

It might appear that this raising of contribution is an easy and effectual remedy, but it is only the foreshadow of a certain dissolution. No new members will enter such a club. Many of the young members exclude themselves, and enter other clubs that do not contain old members. Those only remain who are too old to be received elsewhere. The increased contribution does but postpone the insolvency, while it makes manifest that the insolvency is foreseen and anticipated.

GODMANCHESTER.—Mr. *Thomas Crofts* (p. 10) :—

"I am secretary of the Old Benefit Society, which has been established 90 years ; it has 55 members, that is the usual number. The present stock is 155*l.*, but four years ago it was 200*l.* I attribute that decrease to excessive sickness, fevers, &c. The monthly contributions have been increased, and the payments to the sick decreased in order to prevent the society from being broken up. *We are still losing money every month.* This is not in consequence of the old age of the members. I am most fully convinced that friendly societies have a great interest in the sanitary improvement of the borough."

NEWCASTLE-UNDER-LYME. — I received from *William Hallam*, Esq., surgeon, some valuable statements as to the sick and friendly societies. It appears that they are not generally in a satisfactory state, and that two or three of the most important ones have broken up within a year or two, after having been in existence at least 30 years. Founded on wrong principles, they appeared to prosper for a while, but when the members became old the permanent superannuated pay was too great for the funds to support, and many who had contributed during the years of strength have found all their hopes perish, and the parish their only resource. Similar societies in the neighbourhood have broken up from the same causes, and Mr. Hallam is of opinion that others in the borough may come to the same end. The Odd Fellows have been obliged to raise their contributions, and are not on such a stable footing as they ought to be. Rates of mortality and vital statistics applicable to the town or place have not been thought of by the members when these societies were established. They never contemplated the fact that an abundant supply of water in the town would enable them to give probably one fourth more sick pay and



funeral money to the members ; and that, with an efficient system of public and private drainage of the town in which they reside, their sick societies, now languishing and dissolving, might have flourished and prospered, with contributions equal probably to only two thirds of the present rates.

BURSLEM.—*Samuel Goddard, Esq., surgeon (p. 17) :—*

“There are many friendly or sick societies in the town. I am connected with a number of them as medical officer. Many sick societies have been broken up because the contributions were not equal to the payments. Some have been induced to increase the amount of contribution, and to decrease the amount paid to sick members, in order to sustain the society. The broken-up societies contained generally many old men, who had paid for a great number of years, and were then thrown destitute in their old age. Sick societies have a very great interest in the sanitary improvement of Burslem.”

NANTWICH.—*Thomas Williamson, Esq., surgeon (p. 13) :—*

“There can be no doubt that sick societies have a great interest in sanitary improvements. If these epidemics were reduced by sanitary works, the contributions of the members might also be reduced, or the payments to the sick increased. There is a female sick club in the town which had a few years ago 500*l.* in the savings bank ; that fund is now reduced to 300*l.*”

READING.—*T. L. Walford, Esq., surgeon (p. 26) :—*

“There are many sick societies in Reading. I am connected with some of them. I believe they have been formed without any reference to statistical calculations. My impression, comparing the rates of payment, is, that *they are not generally in a solvent condition*. I have known instances in Reading of such clubs being broken up. If the mortality of Reading could be reduced from 24½ to 17 or 18 I have no doubt it might save some societies from sinking.”

WISBECH.—*Smith Burman, Esq., surgeon (p. 31) :—*

“There are many sick societies and secret orders in Wisbech. I am connected with three. They keep many a poor man and his family from the parish. If the mortality of Wisbech were to be reduced only to the average of the whole country it would be a great advantage to these societies.”

WORKSOP.—*Henry Hase, Esq., surgeon (p. 14) :—*

“I am medical officer to several sick societies in the town. They are numerous. I think they are not based upon any calculation of laws affecting sickness and mortality, and *that they cannot continue in existence fifty years* ; that is, without a great alteration in their policy and constitution they cannot continue to pay under their present system of management. It may, and probably will happen, that many men now in the prime of life will, if they become old, be deprived of any benefit from these clubs. The sick societies, secret orders, and other similar associations have a great interest in the sanitary improvement of the town.”



I have frequently had occasion to show the futility of the best directed individual efforts, even when accompanied by wealth and influence, to supply the place of properly constructed public works. If this be so, what can the poor man do whose cottage is without any proper water supply or drainage? His only resource seems to be by co-operation with others, in a similar condition, to raise a fund for their mutual relief when attacked by any of the maladies to which they are so much exposed. They have not sufficiently calculated the rapacity of preventible disease. Their hoarded savings must be added to the "pecuniary loss from defective sanitary arrangements," and the survivors must look forward to penury and pauperism when, from sickness or old age, they shall be no longer able to work.

#### COST OF EXCESSIVE SICKNESS, FUNERALS, AND LOST LABOUR.

Notwithstanding all the enormous losses to which I have alluded, and of which no estimate in figures could be formed from the materials at my disposal, it is possible to ascertain the approximate amounts sacrificed in consequence of excessive sickness, funerals, and lost labour in some of the places visited by me under your direction.

It has been found by medical men and statisticians, who have paid the most attention to the subject, that for every death in excess there has been at the least twenty-eight cases of sickness in excess, the expense of which cannot be less than 1*l.* per case. My own experience agrees with this estimate, but in order to avoid any captious objection I have only taken twenty-five cases to each death.

Among the pecuniary consequences of the preventible excess of deaths, the average of 5*l.* for each funeral, including coffin, fees, mourning, &c., is a very low estimate.

The premature death of an adult involves a loss of productive labour, averaging certainly not less than 10*s.* per week for each male, and 5*s.* for each female, or 7*s.* 6*d.* each per week, male and female. This for all classes, including skilled and unskilled labourers, will be a low average loss beyond the prime cost of their maintenance.

On these data I have prepared Table No. 12, showing the amounts to be classed under these heads only, in twenty-nine of the places visited. The standard by which this pecuniary loss is measured being the averages of the sixty-one whole registration districts in Table No. 10, and which contain above a million inhabitants.



TABLE No. 12.—Showing the AMOUNT of PECUNIARY LOSS from EXCESSIVE and PREVENTIBLE SICKNESS AND MORTALITY in 29 PLACES VISITED by WILLIAM LEE in 1849 and 1850, as compared with the AVERAGES of 61 WHOLE REGISTRATION DISTRICTS containing ABOVE A MILLION INHABITANTS.

Parish or Place.	Population.	Annual Excess in Number of Deaths.	Years loss of life to		Annual loss of money, value of productive labour, at 10s. per week men, and 5s. per week women, say 7s. 6d. per week to each adult individual.	Total loss on the years Deaths in			
			Every individual.	Every adult.		Sickness.	Funerals.	Labour.	Total.
			Y. M.	Y. M.	£ s. d.	£	£	£	£
Market Harborough	4,133	16	—	3 9	73 2 6	400	80	3,948	4,428
Great Bowden	—	19	11 1	6 6	126 15 0	475	95	5,296	5,866
Little Bowden	5,208	12	—	0 6	9 15 0	300	60	682	1,042
Ashby-de-la-Zouch	—	21	11 5	5 0	97 10 0	525	105	4,582	5,212
East Retford	—	132	13 6	4 3	82 17 6	3,300	660	9,364	13,324
West Retford	6,484	15	—	5 11	115 7 6	375	75	6,807	7,257
Clarlborough	—	45	14 1	2 0	39 0 0	1,125	225	1,521	2,871
Ordsall	3,358	104	10 4	7 5	144 2 6	2,600	520	18,736	21,856
Swaffham	11,000	202	13 5	10 2	198 5 0	5,050	1,010	41,434	47,494
Loughborough	4,200	124	15 7	6 9	131 12 6	3,100	620	11,714	15,434
Epsom	5,000	73	16 9	11 4	221 0 0	1,825	365	15,249	17,439
Holbeach	10,432	169	3 10	1 6	29 5 0	4,225	845	7,663	12,733
Newcastle-under-Lyme	17,503	7	—	0 8	13 0 0	175	35	507	717
Burslem	7,491	318	11 1	8 7	167 7 6	7,950	1,590	53,894	63,434
Ely	6,323	146	5 2	4 9	92 12 6	3,650	730	13,430	17,810
Nantwich	26,434	38	13 2	9 6	185 10 0	950	190	14,468	15,608
Great Yarmouth	3,461	107	14 11	14 3	277 17 6	2,675	535	25,842	29,052
Diss	22,716	142	8 7	9 7	186 17 6	3,550	710	23,733	27,993
Reading	8,096	24	15 5	5 0	97 10 0	600	120	2,632	3,352
Gainsborough	8,842	205	6 5	2 0	39 0 0	5,125	1,025	7,020	13,170
Alfreton	6,300	647	5 1	2 10	55 5 0	16,175	3,235	48,067	67,477
March	6,100	75	8 1	6 1	118 12 6	1,875	375	11,625	13,875
Selby	3,150	38	7 5	4 6	87 15 0	950	190	7,303	8,443
Walsoken	9,500	58	14 5	9 6	185 10 0	1,450	290	12,614	14,354
Wisbech	64,548	2,737	—	—	—	68,425	13,685	348,131	430,241
Workshop	6,767	—	—	—	—	—	—	—	—
Rotherham	6,446	—	—	—	—	—	—	—	—
Kimberworth	5,932	—	—	—	—	—	—	—	—
Totals	259,424	2,737	—	—	—	68,425	13,685	348,131	430,241



I need not comment upon this table. It tells its own story.

The estimated cost of works for constant supplies of pure water in every house, and perfect drainage, for the places included in this table, amount in the aggregate to about 445,000*l*.

The pecuniary loss in one year from defective sanitary arrangements, under three heads only, amounts to 430,000*l*.

If twenty-eight cases of sickness in excess to each death in excess had been taken, as usual, instead of twenty-five, the amounts would have been nearly equal.

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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## GENERAL SUGGESTIONS.

I have only to add, for the consideration of your Honourable Board, a few suggestions that appear naturally to arise from the conclusions of the three several heads of this summary.

I. That even if the injury done were confined to the persons creating nuisances, they ought to be compelled to be clean ; how much more when the innocent suffer for the guilty. That therefore sanitary measures ought, without exception, to be compulsory ; and so far from any injustice being done by compulsory measures, it is a gross injustice to the masses of town populations, who have practically no voice in the matter, that sanitary improvements should be optional.

II. That inasmuch as the causes of preventible disease are not peculiar to "towns and populous places,"\* but consist in the density of the emanations from unremoved filth, and exist with as fearful consequences in mere villages as in the largest towns, a more comprehensive measure than the Nuisances Removal Act or the Public Health Act, and of general application, is imperatively needed.

III. The actual statistics of sixty-one unimproved registration districts, containing more than a million inhabitants, prove that a much longer duration of life is attained by large masses of people than has been generally understood ; and, the points at which preventible mortality commence are lower and more apparent.

IV. That the ages and circumstances at and under which the greatest sacrifice of human life takes place *vary* in different places ; and that at least the Public Health Act ought to be applied, after due inquiry, without petition, wherever it shall appear that upon the average of seven years—

1. The mortality has been greater than 20 to a thousand of the inhabitants ; or,
2. The proportion of deaths under one year old to the births has been equal to 1 in 10 ; or,
3. Where the proportion of deaths from epidemic, endemic, and contagious diseases has been equal to 1 in 400 ; or,
4. Where the average age of all who have died has not exceeded 35 years ; or,

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\* See Preamble of Public Health Act (1848).



5. Where the average age of the adults who have died has not exceeded 56 years; or,
6. Where the deaths under 20 years of age have exceeded the proportion of 40 per cent. of the whole deaths in the district.

V. That irrespective of the medical considerations connected with improved health and prolonged life, it is manifest that the most perfect sanitary arrangements are the largest pecuniary economy.

By a generalisation from the facts herein-before stated it might be deduced that the cost of preventible disease is equal to the whole public revenue of the country.

Allow me again to remind your Honourable Board that this summary is confined to the towns and places visited by me in the years 1849 and 1850. The details of all the places visited during the present year would have presented entirely similar results.

I have the honour to be,

My Lords, and Gentlemen,

Your very obedient servant,

WILLIAM LEE.

The General Board of Health,

&c.

&c.







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