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BOROUGH OF NEWCASTLE-UPON-TYNE.

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REPORT  
OF THE  
MEDICAL OFFICER OF HEALTH  
ON THE  
*Sanitary Condition of Newcastle-upon-Tyne,*  
WITH  
TABULAR RETURNS AND DIAGRAMS  
OF THE  
SICKNESS AND MORTALITY  
DURING  
THE YEAR 1881.



Newcastle-upon-Tyne:  
ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.  
1882.

TO MR. ALD. THOMAS WILSON, J.P., CHAIRMAN OF THE SANITARY  
COMMITTEE.

SIR,

I have the honour to submit herewith my Annual Report for  
the year 1881.

The fact that the death-rate is the lowest on record will be to the  
Committee and yourself, as guardians of the public health, a source of  
satisfaction for labour in the past, and an encouragement for continued  
energy in the future.

The late issue of the Report will, I feel sure, have your excuses, seeing  
that the delay has been caused by pressure of various duties.

I have the honour to be,

Sir,

Your obedient Servant,

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

*Health Department, Town Hall,  
Newcastle-upon-Tyne,  
28th June, 1882.*

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# BOROUGH OF NEWCASTLE-UPON-TYNE.

## REPORT 1881.

### (A.)—STATISTICS.

DURING the 52 weeks ended 31st December, 1881, 5,333 births and 3,164 deaths have been registered in the Borough. The births represent a rate of 36·6 and the deaths a rate of 21·7 per 1,000 of a population of 145,675 at all ages, as estimated by the Registrar General to the middle of the year.

The rate of mortality is the lowest on record, as the subjoined table shows:—

RATES OF MORTALITY PER 1,000 POPULATION IN THE BOROUGH OF  
NEWCASTLE-UPON-TYNE.

A.D.						Rate per 1,000.
1868	...	...	...	...	...	27·1
1869	...	...	...	...	...	27·2
1870	...	...	...	...	...	25·4
1871	...	...	...	...	...	32·2
1872	...	...	...	...	...	26·3
1873	...	...	...	...	...	30·1
1874	...	...	...	...	...	29·2
1875	...	...	...	...	...	26·1
1876	...	...	...	...	...	22·7
1877	...	...	...	...	...	22·3
1878	...	...	...	...	...	23·7
1879	...	...	...	...	...	23·5
1880	...	...	...	...	...	22·3
1881	...	...	...	...	...	21·7

The death-rate for the year under report, which is less by 0·6 per 1,000 than that for 1880 (up to that time the lowest attained) is encouraging, and is more satisfactory from the fact that practically it is calculated on the population of the census, whereas the rates for 1880, and years immediately preceding were somewhat understated because based on populations which the recent census has shown were over-estimated.

A comparison of the rates of birth and death in the different Registration Sub-districts of the Borough during last and the next previous year is subjoined:—

RATES OF BIRTH AND DEATH PER 1,000 POPULATION (ESTIMATED).

REGISTRATION SUB-DISTRICTS.	BIRTH-RATES.		DEATH-RATES.	
	1880.	1881.	1880.	1881.
Westgate* ...	33·8	37·6	20·0	21·8
St. Andrew's ...	30·0	29·0	18·8	18·0
St. Nicholas† ...	30·2	29·7	36·7	41·5
All Saints' ...	33·5	39·5	21·7	22·2
Byker ...	57·3	38·9	27·5	17·1
Borough ...	36·4	36·6	22·3	21·7

\* Workhouse.

† Infirmary and Fever Hospital.



In explanation of this Table it is to be observed that the populations of the sub-Districts of Westgate, St. Andrew's, St. Nicholas', and All Saints', as enumerated at the census, were much *below*, and in the case of Byker much *above* the estimates; the rates, therefore, for that year, in the first four of these districts are understated, and in Byker overstated.

The mean annual birth-rate of the Borough per 1,000 population during the last five preceding years is 38.5.

The condition of the different Sub-districts in regard of mortality from the Miasmatic order of Zymotic diseases during last, as compared with the preceding year, is as follows:—

SUB-DISTRICTS.	Number of Deaths from Miasmatic Diseases.	
	1880.	1881.
Westgate ... ..	223	206
St. Andrew's ... ..	78	30
St. Nicholas' ... ..	52	67
All Saints' ... ..	109	83
Byker ... ..	100	61
Borough ... ..	562	447

The mortality from the CHIEF ZYMOTIC DISEASES, viz.:—Small-pox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, "Fever" (including Typhus, Enteric, and Simple Continued Fevers), and Diarrhoea, in the Registration Sub-districts\* during the successive seasons of the year is as follows:—

NUMBER OF DEATHS IN 1881.

	WESTGATE.†					ST. ANDREW'S					ST. NICHOLAS'					ALL SAINTS'					BYKER.				
	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Small Pox ... ..	1	1	2	4	8	1	...	2	3	6	1	...	1	...	1	...	...	...	...	2	...	...	...	2	...
Measles... ..	2	10	2	2	16	...	1	1	2	4	1	2	...	1	4	3	2	...	4	9	1	1	2	4	...
Scarlet Fever ... ..	5	6	1	3	15	2	2	...	4	8	...	1	4	5	5	3	2	8	18	2	2	1	1	6	...
Diphtheria ... ..	...	1	...	...	1	...	...	...	...	...	1	1	...	2	...	1	1	...	...	...	...	...	2	2	...
Whooping Cough	12	10	3	5	30	2	2	3	...	7	5	1	3	...	9	3	3	8	3	17	1	1	3	2	7
Typhus... ..	1	...	8	...	9	...	...	...	...	...	1	3	1	5	...	...	...	...	...	...	...	4	2	6	...
Enteric (or Typhoid) Fever	7	7	6	3	23	1	1	...	2	4	...	...	...	1	1	...	1	1	3	2	1	1	5	9	...
Simple Contd. Fever	...	2	1	...	3	...	...	...	...	...	...	...	...	...	1	...	1	2	...	...	1	...	1	...	...
Diarrhoea ... ..	22	13	44	7	86	1	2	4	1	8	1	9	1	11	...	16	4	20	4	5	12	3	24	...	...

\* Corrected by distribution of those occurring in the Fever Hospital to the district from which each patient came.

† Exclusive of Benwell and Fenham.

The rate of mortality in the Borough from the chief Zymotic diseases is 3·0 per 1,000 population as compared with rates of 3·3 and 3·7 in 1879 and 1880. The principal factors in this class are:—

<i>Measles,</i>	from which a total of	35	deaths are recorded against	15	in 1880.
<i>Scarlet Fever</i>	"	52	"	141	"
<i>Whooping Cough</i>	"	70	"	129	"
<i>Enteric Fever</i>	"	38	"	30	"
<i>Diarrhœa</i>	"	149	"	172	"

#### DISEASES OF THE RESPIRATORY ORGANS.\*

Under this head 474 deaths are returned as against 511 in the year before. The two leading diseases of the Order—Bronchitis and Pneumonia—have together caused 409 deaths, as compared with 450 in the year 1880. The following Table shows the number of deaths from the two diseases combined in each Sub-district during the successive quarters of the year under report:—

#### DEATHS FROM BRONCHITIS AND PNEUMONIA.

A.D. 1881.	REGISTRATION SUB-DISTRICTS.					BOROUGH.	Number in previous year (1880.)
	Westgate (Workhouse)	St. Andrew's	St. Nicholas' (Infirmary).	All Saints'.	Byker.		
1st Quarter ...	50	16	9	30	19	124	143
2nd " ...	38	11	12	16	22	99	130
3rd " ...	32	8	7	19	9	75	64
4th " ...	40	15	9	20	27	111	113
Year ...	160	50	37	85	77	409	450
Number in previous Year (1880)	173	51	34	111	81	450	...

The noteworthy facts indicated by the above Table are (1), reduction of mortality in the Borough from the two chief Respiratory diseases during the first and second quarters; increase during the third quarter; and equality during the fourth quarter of 1881, as compared with the corresponding quarter of 1880. (2) During 1881, the mortality from Bronchitis and Pneumonia was heaviest in spring, next heaviest in winter, next in summer, and lightest in autumn, the mean temperatures of these quarters increasing in the same order. In the year before the quarterly mortality from the same causes decreased in a somewhat different order, viz.:—Spring, summer, winter, autumn, in this case not corresponding with the order of increase in the mean temperatures of the

\* Including Laryngitis, Bronchitis, Pleurisy, Pneumonia, Asthma, and other Lung disease (not Consumption).



respective seasons of that year, which was as follows:—Spring, winter, summer, autumn (see Appendix A., Table XIX.) (3) The reduction of mortality during last year as compared with the year before has been general throughout the Borough.

#### INFANT MORTALITY.

The number of children dying before the completion of the first year of life is 820, as compared with 927, 784, and 888 respectively in 1880, 1879, and 1878:—

	No. 1. Deaths of Children under 1 year of age.		No. 2. Rates per cent. of Deaths under 1 year to Births registered.		No. 3. Death Rates of Children under 1 year of age per 1,000 esti- mated Population at all ages.	
	1881.	1880.	1881.	1880.	1881.	1880.
Westgate ... ..	346	370	14.9	15.8	5.6	5.4
St. Andrew's ... ..	81	103	14.9	17.0	4.3	5.0
St. Nicholas' ... ..	73	59	25.0	20.2	7.4	5.0
All Saints' ... ..	155	200	16.1	20.5	6.4	6.9
Byker ... ..	165	195	13.7	15.9	5.3	9.1
Borough ... ..	820	927	15.4	17.0	5.6	6.2

By the above it appears that with one exception (column 3, Westgate) the year under report shows an improvement over the preceding under each head of the Table, in every Sub-district except that of St Nicholas'. In 1880, the reverse was the case, St. Nicholas' being the only Sub-district exhibiting improvement in this respect. The improvement in the Borough generally is chiefly due to decrease of deaths from the subjoined causes during last as compared with the previous year.

	A.D. 1881.	A.D. 1880.
Whooping Cough ... ..	23	57
Diarrhœa ... ..	83	95
Tabes Mesenterica ... ..	20	34
Convulsions ... ..	113	127
Bronchitis ... ..	74	125
TOTAL ... ..	313	438

The departure of the returns for St. Nicholas' from the general rule in the above Table is partly explained by the fact that in that Sub-district there has been an increase of deaths from Diarrhœa, Premature Birth, and "Atrophy and Debility."

## UNCERTIFIED DEATHS.

That is to say, deaths registered without any proper medical certificate having been given or inquest held, have contributed 122 cases to the general mortality, as compared with 126 during the previous year. About 74 per cent. of these are those of children under one year of age.

In the report for the previous year, attention was directed to the technical names used to specify many of the deaths returned under this head, the inference being drawn that the returns had been made by unqualified practitioners. It is significant that two such cases only have been recorded during the year under report as compared with about a dozen in the previous year, although the whole number of uncertified deaths is but little reduced.

## MARRIAGES.

During the year ended 31st March, 1881, the number of marriages registered in Newcastle-upon-Tyne\* is 1,717, against 1,700 in the previous twelve months, and 1,646 in the year before that. Prior to this time the number of marriages had been steadily declining each year since 1874. (See previous Annual Reports.)

The births in the same area during the calendar year 1881 were 5,539, against 5,537 during 1880, and 5,602 during the year before. The returns of marriage and birth are what might have been anticipated from the state of trade in the North of England during the period under report.

## (B.)—ADVICE TENDERED AND ACTION TAKEN.

The different portions of this division of the report included in the term "Advice" are chiefly summaries from the fortnightly reports to the Sanitary Committee.

## (1.)—ZYMOTIC DISEASES.

## (a.)—FEVER HOSPITAL.

During the year 187 patients have been admitted to the Fever Hospital, including 6 of Scarlet Fever, 69 of Typhus, 30 of Enteric Fever, 72 of Small-pox, and various cases of other disease. A list of these is given in Appendix A., Table XIII. Particulars respecting the different Zymotic diseases in the Borough and the noteworthy circumstances under which they occurred are given under the proper head (see page 12 *et. seq.*)

The monthly admissions ranged from 6 in February to 28 in October. 46 of the cases of Typhus were received in August and September, and 32 of the cases of Small-pox in October and November.

\* Superintendent Registrar's District, which includes the Municipal Borough and the Townships of Benwell and Fenham.



In January the Hospital was empty for four days, but with that exception the wards have been more or less in use throughout the year. The subjoined Table shows the highest and lowest daily number of patients in the Institution during each month:—

FEVER HOSPITAL, NEWCASTLE-UPON-TYNE.

HIGHEST AND LOWEST DAILY NUMBER OF PATIENTS IN THE INSTITUTION.

A.D. 1881.	Highest Number.		Lowest Number.	
January	...	7	...	0
February	...	7	...	3
March	...	9	...	6
April	...	13	...	6
May	...	14	...	10
June	...	9	...	7
July	...	15	...	4
August	...	25	...	14
September	...	24	...	13
October	...	24	...	11
November	...	30	...	20
December	...	24	...	11

Although, as appears from the foregoing Table, all the beds of the Hospital have never been occupied at one time during the year, those available have on several occasions been found insufficient. A single case of any infectious disease will occupy a ward, to the exclusion of cases of other disease; and that has happened several times.

In this way, wards much needed for Typhus patients were occupied by cases of Scarlet Fever admitted from the Infirmary. The want of suitable wards renders the isolation of Scarlet Fever in Hospital almost a dead letter. Thus, out of 162 cases reported, 8 only were removed. The Hospital was also for some time closed to Enteric Fever, on account of the pressure from Small-pox in one block and Typhus in the other. At another time (in December) it was reported to the Sanitary Committee that the cases of Enteric Fever in Hospital were exposed to serious risk of contagion from a case of Typhus removed, on great urgency, from the Prison. The need of private wards has also been felt. A case of Scarlet Fever in a large public institution was of necessity, and against the wish of the parents, retained at home, owing to the want of accommodation at the Hospital.

But there are other circumstances by which the administration of the present Hospital is liable to severe strain, and by which it has been affected during the past year. Chief among these are the want of space in the wards and the ventilation, and other structural defects of the building generally, as was stated in the Annual Report for 1878:\*

\* Page 12.

"The capacity of each ward is such that to occupy all the beds is to deprive the patients of the requisite amount of air-space." Although nominally a Hospital of 56 beds,\* the space of all the wards together is only 49,437 cubic feet, or, allowing 2,000 cubic feet per bed, sufficient for 24 beds. The result of encroaching on the recognised requisite air-space per bed has been that, as has occurred on several previous occasions,† the rate of mortality has risen with the increased number of patients. Thus, in September, when the wards were more crowded than at other times, the deaths from Typhus to admissions from the same cause rose to 39·1 per cent., against a rate of 25·0 per cent. during the rest of the year. Added to this, the institution in September lost through death from Typhus, contracted in discharge of duty, the services of a valued nurse.

The foregoing facts show that even though all the beds at the Fever Hospital have not been filled on any single occasion during the past year, the accommodation has, nevertheless, proved insufficient.

The maintenance of patients admitted was charged as follows:—

To the Sanitary Authority ... ..	100 cases.
„ the Poor Law Authority ... ..	54 „
„ Private Persons ... ..	20 „
„ Do. do. and Sanitary Authority jointly ...	6 „
„ Public Institutions ... ..	7 „
Total ... ..	<u>187 „</u>

The free admission of so large a proportion of the above has been of very great service in handling the outbreaks of Typhus and Small-pox which have been prevalent during the year. There can be little doubt but that the town would have suffered much more severely than it has done from those diseases, and that both would still have been in full activity, had it not been for the facility afforded by the Sanitary Authority for the early isolation of cases in Hospital. This power, together with other means, was promptly made use of, with the result that, with the exception of private patients, every case of Typhus, and 72 out of a total of 80 cases of Small-pox, coming under the notice of the Health Department, were removed to Hospital without delay.

The following is a summary of the proceedings of the year in regard to the proposed New Sanitary Hospital for the Borough:—

On March 2nd, Mr. Ald. Wilson, Chairman of the Sanitary Committee, presented to the Town Council a report of the Committee embodying the

\* There were formerly 60 beds, but, owing to want of accommodation, a ward of four beds has for some years been used as a sleeping room for nurses.

† See Annual Report of Medical Officer of Health for 1879, page 15.



report of the Medical Officer of Health,\* together with a letter from Dr. R. Thorne Thorne, Medical Inspector of the Local Government Board. The report showed that the efforts of the Committee to obtain a suitable site had been unsuccessful, and recommended the erection of a new Hospital on the present ground at Bath Lane. The proposal was strongly opposed by deputations to the Council representing owners and occupiers of property in the neighbourhood, and memorials from teachers, parents, and guardians of pupils of the Bath Lane Schools, and from medical men. On account of this opposition the Committee renewed their inquiries, and in October the Chairman reported to the Council in favour of the grounds and house at "Moor Lodge," Spital Tongues, together with a field adjoining, comprising a total area of about ten acres, as a suitable alternative site on which to build. This proposition also was opposed by a deputation, who waited on the Council in December, and presented a memorial on behalf of owners of property and ratepayers in the neighbourhood of Spital Tongues; whereon the subject was again referred to the Sanitary Committee, under whose consideration it was at the close of the year.

(b.)—OUTBREAKS OF ZYMOTIC DISEASE IN THE BOROUGH.

SMALL-POX.

80 cases of Small-pox, including a total of 10 deaths registered, have come under the notice of the Department during the year. The distribution of the cases over the different Parishes and Townships of the Borough is shown in Appendix A., Table XVI. Prior to these one case only is known to have occurred in Newcastle since the year 1877.

*History of the Outbreak.*—The first 4 cases occurred in March at a house in Parker Street, Byker. There is reason to believe that infection was first brought to the town by one of these, a seafaring man who had recently been in Antwerp, where the disease was then prevalent. The case did not come to the notice of the Department until the twelfth day of illness. The patient was then removed to Hospital without delay. The other members of the household consisted of three adults, all reported vaccinated, and an unvaccinated child. Revaccination of the adults was strongly urged, but was done in the case of one only (a lodger). The lodger escaped Small-pox; the two others caught the disease, and one of them died. The child was vaccinated after the first case was removed, but the operation had been deferred until too late to be protective, and the child contracted Small-pox, from which he died.

\* See Annual Report, 1880, page 10.

The next case occurred in April at a residence in Osborne Road. The patient, who was unvaccinated, recovered. Infection extended to a servant who bore marks of vaccination in infancy; she was very slightly affected. Two other cases in the same month were reported in Stowell Square.

In May the disease appeared in Buckingham Street, Stowell Square, Monk Street, Prudhoe Place, Quayside, Ellison Terrace, Trafalgar Street, Jesmond Dene, and Molyneux Street, Byker.

In June cases were reported at York Street (Elswick Road), West Street, Thornton Street (? Market Street), Stowell Street, Molyneux Street, Morrison Street (Shieldfield), and Railway Street (Scotswood Road).

In July, cases at Railway Terrace, Crucible Place, George Street, Hedley Terrace, Buckingham Street, and Stowell Square.

In August, at Railway Terrace, Back Lane (Gallowgate), The Friars, Dawson's Court (Westgate Street), and the Blackgate.

In September, at Harle and Bell Streets (Westgate Road).

In October, at Railway Terrace and Street, Cannon Street (Scotswood Road), Seaham Street, Percy Court, Trafalgar Street, Jesmond Vale (6 cases in one family), and Parker Street (Byker).

In November, at Cannon Street (9 cases), Stanley Street, Crispin Street (Bentinck), Harle Street, Villa Place, Hill Street, Percy Court, and Leazes Lane.

In December, at Gloucester Road, Prudhoe Street, Percy Place, Terrace Place, and Orchard Street.

It is satisfactory to be able to report that this outbreak is at an end. The last case was discharged from the Hospital on the 3rd February, 1882.

*The causes of spread* of the outbreak have been (1) *Neglect of vaccination or revaccination*, and (2) *Direct contagion from the infected to the non-infected*. The first of these causes is exemplified by the household in Parker Street already mentioned, in which the disease first appeared; also in the group of 6 cases at Railway Terrace. In two of the infected households in the latter street the excuse of the parents for neglecting the vaccination of their children was that they were "too delicate." In one of these the result of this mistaken kindness was that the child contracted a severe form of Small-pox and died. The following are illustrations from the experience of last year of different modes by which Small-pox may be communicated:—



(a.)—A case was admitted to Hospital from the Infirmary where it had been taken for advice among the out-patients.

(b.)—A domestic servant visited her mother who was suffering from malignant Small-pox, from which she died. The servant afterwards returned to her place without disinfection.

(c.)—The patient last mentioned, who was a woman, had worked at a public washhouse until too ill to remain there.

(d.)—Several cases of Small-pox occurred among the miners of a certain colliery and their families. 10 cases in one street were traced to this source. The following is an extract from a report made to the Sanitary Committee on the subject in December :—

“As there was some reason to suspect that proper precautions had not been taken to prevent the spread of the disease—one miner having been stated to have gone to work whilst suffering from a mild form of the disease—the Medical Officer of Health wrote to the manager of the colliery, enclosing a copy of the “Instructions” on Infectious Disease, directing attention to the penalties to which offenders against the law as to such disease were liable, and requesting the manager to caution the miners.”

(e.)—The following is copied from a report to the Sanitary Committee in May :—

“Of the recent cases of Small-pox under observation, five occurred at three beer-houses and one was that of a servant at a public-house.

In May the Medical Officer of Health learned that two cases had remained at home under private medical treatment at the . . . . . beerhouse, Newgate Street. On visiting the house it was admitted that the first case had occurred several weeks before, and was now convalescent. The patient, a boy, was playing on the street, and, on being called in for inspection, was brought through the bar of the beerhouse. The crusts of Small-pox were still on his legs.

The other patient was in the room over the beerhouse, and was being attended to by the mother and another person, both of whom came down into the bar of the beerhouse during the visit of the Medical Officer of Health. The beerhouse keeper is the grandfather of a child from Stowell Square, who was admitted to Hospital suffering from Small-pox. At the time of this patient's removal to Hospital her father and mother denied all knowledge of any other cases of the disease, although, as they have since admitted, they were then visiting at the beerhouse and knew of the two cases.”

Six persons resident in different parts of the town, and others in Gateshead, are known to have contracted infection from this beerhouse.

(f.)—The prevalence of the disease in various parts of the town is attributable to the visits paid by neighbours and relatives to the infected. On several occasions such visitors have been found by the bedside of the patient, and have left the room only on threat of legal proceedings.

(g.)—The spread of infection may be due to the fact that some of the cases of Small-pox occurred in common lodging-houses. In one of these the removal of the patient was opposed by its father, the keeper of the house, in consequence of which the lodgers were discharged.

(h.)—Cases of Small-pox have come under notice in one public-house and three beerhouses (including the above).

The *action taken* by the Health Department for the prevention of Small-pox has been as follows:—

Every legitimate means short of compulsion (which was not found necessary to resort to in any one instance) was employed to secure the immediate removal of the cases to Hospital wherever practicable, the Sanitary Authority defraying the expenses of all except paupers and persons able to pay for themselves. On one occasion, in order to meet the objection to removal, a healthy mother was, with the sanction of the Authority, admitted to Hospital free of charge with her four sick children, all of whom made good recoveries.

The purification of the premises and the disinfection of the bedding, etc., in the apparatus of the Corporation, and, when considered necessary, the destruction of infected articles, was as usual attended to.

Intercourse between infected families and others was forbidden, and, as far as possible, prevented. The usual printed instructions as to the steps to be taken were left at each infected house.

Six thousand copies of a pamphlet recommending revaccination,\* printed by order of the Sanitary Authority, were circulated among the scholars of the large day schools for transmission among their parents, and a poster was placarded in the public washhouses cautioning persons against coming to those places from infected houses.

The relatives of the infected persons were strongly urged to be vaccinated or revaccinated (as the case might be). The names and addresses of unvaccinated persons were reported to the Vaccination Officer.

In the case of the beerhouse keeper before mentioned (page 14, Section e.) legal proceedings were instituted against the father of the patients for the exposure of his infected child on the street. The mother was also summoned for having exposed her infected clothing in the bar of the beerhouse. The cases were heard before the Magistrates, and dismissed.

#### TYPHUS.

*History.*—Cases of Typhus appeared during the first half of the year, on three different occasions and in separate localities, viz., in January,

\* See Appendix.



February, April, and June, in the neighbourhood of Back Marlborough Street, Blackgate, and Shipley Street, Byker. These outbreaks were readily checked, in the two latter cases being limited to a single case each. A fresh invasion came under notice in Bentinck in July—9 cases being reported, viz., 7 in Portland Street and 2 in Handyside Street. Infection was conveyed thence to Elswick East Terrace (3 cases in one family).

In August 19 cases occurred in the following localities:—Elswick East Terrace, Handyside Street, Railway Street, Mill Lane (Bentinck), Portland Street, St. Mary Street, Sandgate, Dawson's Court (Westgate Street), Castle Square, Dog-leap Terrace, and Tuthill Stairs.

In September 23 cases were reported in Stepney Lane, Thornborough Street, Catterick's Buildings, Potts Street, Appleton's Buildings, Fairless Street, Shields Road, Dog-leap Terrace, Monk Square, Liverpool Lane, Mill Lane, Handyside Street, and Cannon Street (Scotswood Road).

In October the number of cases reported declined to 9. These occurred in Blandford Street, Kinghorn's Yard (Queen's Lane), Handyside Street, Thornborough Street, Harvey Street, and Shields Road.

In November 4 cases were reported, viz., in Spring Garden Lane and Harvey Street.

In December 2 cases appeared, viz., 1 in the Prison (a relative of some of the foregoing) and 1 in Akenside Hill. The last of these patients was discharged from the Hospital in January.

*Origin and causes of spread.*—Prior to the first cases coming under notice of the Department in July, it is highly probable that at least five other persons connected with these had also suffered from Typhus without the exact nature of the disease being recognised. Thus, in a single-room tenement at Portland Street, Bentinck, from which four cases of Typhus (the entire family) were removed, there had shortly before been a death from Fever returned as Enteric. An attendant on this case, whose house was in Scott's Entry, Sandgate, presently fell ill and died, but her illness was not recognised as Fever. Her sister and several other persons living near her caught Typhus, and the sister died. Several other cases occurred in Bentinck, and from there the disease was imported to Elswick East Terrace by a convalescent from Fever (not recognised as Typhus at the time) who infected her father, two brothers, and a neighbour's child. The father and one of the brothers died. In another case the corpse of a woman, whose death was returned as due to "blood poisoning," lay for several days unburied at a house in Potts Street, Byker. A large number of cases of Typhus occurred soon afterwards in the different tenements of

the same house, and in other streets, among the families of connections of the deceased, who had been carousing in the house before the interment of the corpse. The origin of all the cases of Typhus to the east of the Ouseburn are distinctly traced to this centre in Potts Street. In like manner, all the cases to the west of the Ouseburn, with one exception, have been clearly traced to direct contagium one from another, and there is much probability that the exception referred to is due to the same cause.

Among predisposing causes of the outbreak, destitution has, as usual, played a leading part. In one single-room tenement the family of four persons, all ill of fever, were found lying upon the floor in the greatest necessity. There had previously been a fatal case in the same room.

Overcrowding cannot on this occasion be blamed as having been to any marked degree a cause, either direct or indirect, of the outbreak. A house-to-house inspection at Byker revealed much squalor and various sanitary defects, but no overcrowding in the legal acceptation of the word—*i.e.* the provision of less than 300 cubic feet of room space per person.

The *action taken* comprised:—

- (1.)—Immediate isolation of cases either at the charge of the Sanitary Authority or the Poor Law Authority. In this direction the efforts of the Department were most successful, all the cases, except, as previously stated, two in private practice, having been removed to Hospital. In many cases this result was not secured without much persuasion, and sometimes great difficulty. In one instance, after two prolonged but ineffectual attempts to obtain the consent of a mother to the removal of her child, it was necessary to resort to a Justice's order, for the execution of which we were indebted to the good services of the police. The successful issue of the case gained for the Authority the gratitude of the parents.
- (2.)—During the concurrent prevalence of Typhus and Small-pox the danger of conveying infection of one disease to patients suffering from, or convalescent after, the other, was a source of much anxiety in the Hospital. All possible measures were taken to minimise this risk, including the vaccination of the cases of Typhus before removal from their homes. Happily no patient with, or convalescent after, one disease contracted the other.



(3.)—A house-to-house inspection was instituted in Byker for the purpose of ascertaining the extent of overcrowding, filth, and other conditions likely to aid the spread of disease. Most of the defects of property disclosed by the inquiry were dealt with. As already stated, no penal overcrowding was discovered.

(4.)—The usual disinfections, etc.

#### ENTERIC FEVER.

*History.*—Enteric Fever appears to have been more prevalent in the Borough last year than in 1880. 109 cases have come under the cognizance of the Health Department as compared with 63 during the year before. These have been most numerous in Byker (See Appendix A., Table XVI.). Several of the cases occurred towards the close of the year. 30 only have been removed to Hospital, a large number of the others being in private practice, and the want of accommodation in the Hospital preventing the admission of many more during a considerable portion of the year.

The *origin and causes of spread* of Enteric Fever are often obscure, and this has to a certain extent been the experience in Newcastle during last year. Although in many instances the occurrence of the disease in particular households was associated with special defects of domestic sanitary arrangement, the preponderance of cases in certain localities indicates a general, rather than a purely local, cause. It is believed that the general causes of Enteric Fever in the Borough last year are two in number, viz., Drainage and the Privy Midden System. The former has probably been in operation in Byker, where the recent growth of the town has been much more rapid than could well have been anticipated, and has rendered the original schemes of sewerage insufficient. The effects of the Privy Midden System in the spread of the contagium of such diseases as that in question are perhaps even more serious than those of removal of refuse by drains and sewers. In the latter case, the offensive material is, under ordinary circumstances, carried away rapidly and underground; in the former, it is stored up for weeks and months, often very near the windows of living- and bed-rooms, in leaking middens from which its liquid contents soak into the foundations of dwellings, and, exposed to sun, rain, and wind, to ferment and putrefy, or scatter broadcast the seeds of disease from infected discharges. This means of the spread of contagium in Byker was referred to in the Annual Report for 1880.\*

\* Page 14.

The following instances observed last year illustrate one of the chief evils of the Midden System:—

(a.)—Five children in a family, at No. 26, Diana Street, were struck down with Enteric Fever in the early part of the year. There was reason to conclude that the contagium had been derived from the open privy midden a few feet from the door of the house, which shortly before had been used for the deposit of the infected excreta from cases of the same disease at No. 24.\*

(b.)—Enteric Fever was prevalent in summer in a large yard at Day's Buildings, Ballast Hills, and was attributable to an open privy midden used by a large number of families. The midden was opposite to and beneath the windows of the house where the cases occurred.

(c.)—In April 6 cases of Enteric Fever were reported as having been removed to Hospital from a house in Flora Street, Byker. The illness was probably due to an offensive, open, uncemented privy and midden in the yard. The former is about 8 feet from the window of the room principally occupied by the family. There were other sanitary defects in this case, but that above described was the most striking. Three other cases of Enteric Fever afterwards appeared in a neighbouring household. This house had a similar privy midden to the last.

(d.)—In July the following report was made to the Sanitary Committee:—

"Several cases of Enteric Fever have occurred lately at Jesmond Vale, and one has terminated fatally. At least four households are known to have been invaded, and seven persons to have been affected by the disease. With one exception all of these lived in Mill Street. At the foot of this street are two privies and a very offensive open uncemented midden containing a quantity of liquid. The rain from the roofs of the privies falls into this midden, and the water of the Mill-race laves its foundations.

All the drainage of Jesmond Vale discharges into the Burn. Some of the drains are made of brick. The spread of infection is probably due to the defective state of the drainage and the offensive condition of the privies."

This report terminated with a recommendation of a Survey of Jesmond Vale with the object of improving the drainage and instituting a better system of refuse removal, etc. By the instruction of the Committee a plan of and estimates for a complete system of sewerage for the Vale were prepared and submitted, but are not yet adopted, owing to certain impediments to the carrying out of the scheme.

One of the most common vehicles of the contagium of Enteric Fever is *Milk*. In all outbreaks of the disease the milk supply is almost the

\* See Annual Report, 1880, page 14.



first point to which inquiry is directed. During the past year the following instances of Enteric Fever in association with the production and distribution of this article of diet have been recorded:—

(a.)—Three cases of Enteric Fever occurred in the family of a dairyman at Flora Street, Byker, in September. The case is one of those already referred to.

(b.)—In December a case of Enteric Fever occurred in the family of a dairyman at Jesmond Vale. The patient was removed to Hospital and died there. The dairy business was also removed from Jesmond to Byker.

(c.)—Soon after the last-mentioned case several households in Byker were affected with Enteric Fever. Most of these were under the care of private practitioners, through whose courtesy the Medical Officer of Health was kept informed of the extent of the outbreak. One of the patients was a dairyman at Clifford Street. At this time cases of Enteric Fever also occurred among the customers of the dairyman (above mentioned) recently removed to Byker from Jesmond Vale. A milk dealer in Belvidere Street, Byker, had sickness in his family reported to be Fever, but on investigation the report was not confirmed. Several of his customers, however, suffered from Fever. The customers of other dairymen in Byker had the disease in their households. In all 14 households are known to the Health Department to have been affected during the outbreak. Strict inquiry failed to establish any case against the milk as a medium for the conveyance of infection. The distribution of the disease among the customers of so many different dairymen, none of whom were found to have interchanged milks, is an argument against the theory that this was a Milk Epidemic. The distance at which the various dairies attacked by Fever were situated precludes the supposition that the occurrence of the cases in them was due to any common local cause. There is some reason to infer that the illness in the various dairies was merely a coincidence, and that the outbreak may more properly be ascribed to the defects of drained excrement removal above indicated.

(d.)—Information was received in October of the occurrence of a case of Enteric Fever in the family of the Rev. ———, who suspected the disease to be due to milk supplied by one of the dairymen already referred to as having had Fever in his household. There was no evidence to show that the milk was contaminated; on the contrary, the dairyman is believed to have taken from the first full precautionary measures to prevent such contamination, as was explained by the Medical Officer of

Health to the satisfaction of those concerned. There were sanitary defects on the premises sufficient to account for the sickness, and for this reason the Rev. ——— left the house.

Numerous other cases of Enteric Fever have been met with in connection with local sanitary defects of houses—*e.g.*, with regard to drainage, closet accommodation, etc.; among others may be specified the dairy premises at Jesmond Vale visited by Enteric Fever, already referred to. The house was newly built, damp, and unfit for habitation. There was no convenient water supply. The recently-constructed privy was defective. The yard common to house and cow-shed was unpaved and very muddy. On the ground opposite to the cow-shed was an immense heap of cow-dung draining into a recently-constructed cesspool. The cow-shed was a defective wooden structure discharging its liquid manure into the Ouseburn. The premises were in a very insanitary condition.

*Action taken.*—The usual disinfection of premises, bedding, etc., has been done in every case. A recommendation of the Medical Officer of Health for the daily disinfection of middens receiving Typhoid excreta was approved by the Sanitary Committee, and is reported by the Inspector as having been attended to. Many improvements have been effected in private drainage and other matters relating to domestic sanitation. The important subject of the sewerage of Byker has been referred to the Borough Engineer for his report. The scheme of sewerage for Jesmond Vale is under consideration. The subject of the disposal of solid refuse is referred to the Borough Engineer and Medical Officer of Health for report. Much, however, remains to be done. At Jesmond Vale, except for some minor improvements, matters remain in almost the same condition as before, partly on account of the difficult question of sewerage. The dairy which was temporarily vacated has been re-occupied, but has not been improved.

In every case of Enteric Fever at a dairy, as in other forms of infectious disease, the thorough separation of the milk business from the infected house and all belonging to it has been insisted on. In one instance, as stated, the patient was removed to Hospital; in others, the dairymen were required to provide other premises on which to conduct their business, and all persons engaged in the production, storage, or distribution of the milk were prohibited from coming to the infected house. This prohibition continued until after the final disinfection.

#### SCARLET FEVER.

169 cases became known to the Health Department, including 52 deaths, against 309 cases and 141 deaths during the preceding year.



Of the cases under report, six only were removed to Hospital. This small number is chiefly due to the want of accommodation at the Hospital, and the objections on the ground of the youth of the sufferers, as mentioned in the Annual Report for 1880 (page 31).

Judged by the cases of which notification has been made to the Department (in this instance almost limited to Dispensary practice and the returns of death), the chief incidence of the disease has fallen on the Parish of All Saints, and next in order on the Township of Westgate, the Parishes of St. Andrew, St. John, Elswick, St. Nicholas, Byker, and Jesmond. (See Appendix A., Table XVI.)

The returns include five cases, of which three died within as many days, in two families occupying different tenements of a house in Pitt Street. The illness of two of the cases (both fatal) was obscure, and was not recognized as Scarlet Fever until after burial, when light was thrown on them by subsequent ones, where the signs of the disease were obvious. The outbreak was attributed to exhalations from a drain inlet near which the children had played, and not long before, in the line of this drain, Scarlet Fever had been prevalent. The severity of the cases was apparently intensified by the defective ventilation of the premises.

The occurrence of Scarlet Fever in the wards of the Children's Hospital in spring necessitated the removal of the inmates and the closing of the Hospital for a considerable period. The wards and rooms exposed to infection were purified, and at the request of the Committee of the Institution a report on the sanitary condition of the building was given by the Medical Officer of Health. Unfortunately infection was in more than one instance carried to the homes of the children discharged.

The following illustration of the mode in which infection is spread was reported to the Sanitary Committee in July :—

“On the 5th inst. it was ascertained that M. A. H., aged 14 years, servant of J. R., beer-house keeper, Scotswood Road, had, whilst suffering from a severe form of Scarlet Fever, travelled by tramcar and railway from Scotswood Road to her home at Benfieldside. R. admits that he went with his servant to her home, and that he knew she was suffering from an infectious disease, and that on this account he did not wish her to go.”

On the order of the Committee proceedings were instituted against R. for exposing the girl whilst so suffering. On the first hearing of the case the magistrates could not agree. The case was again heard, and was dismissed on the ground that the defendant's charge of the girl had not been proved. The evidence showed that the defendant had gone with the patient (who was his neice, and prior to falling ill had done

servant's work in his house) from Newcastle to Blackhill, in the County of Durham, where she gave rise to eight cases of Scarlet Fever.

*Scarlet Fever at a Dairy.*—Four of the children of a Dairyman at Wilson's Yard, Gallowgate, were reported as having Scarlet Fever in August. The cases were under private medical treatment: the family live at the Dairy. The following report was made to the Sanitary Committee on the subject:—

"On a visit to the premises the kitchen was found to open directly into a stable next to Strawberry Lane, in which two horses and a cow were stalled. The sick children lay in a room over this kitchen, and milk vessels were kept in a pantry within the door of the kitchen. The stable is in an insanitary condition, the ventilation being defective, the paving bad, and the smell exceedingly offensive. It is beneath some of the rooms of the house.

With reference to the cases of Scarlet Fever, instruction was given that the milk business and every one connected with it should be separated entirely from the house and those who continued to live in it. The Inspectors were at the same time instructed to keep the premises and occupants closely under supervision to ensure as far as possible the protection of the milk supply from infection.

The cow-house, which abuts on the stable, when recently inspected under the Dairies Order, prior to its occupation by the present tenant, was to have been altered considerably. The height now is only 9 feet, and the ventilation is defective. The paving of the yard is defective, and the midden is built of brick and uncemented. It was full and leaking at the time of inspection."

A lodging at some distance was taken for such of the household as were required to attend to the business, and it is believed that the instructions of the Medical Officer of Health for the prevention of the spread of infection were carried out. On the order of the Sanitary Committee a notice was served on the dairyman to remedy the defects of the premises. This has not been properly attended to, and has necessitated further action, which forms matter for future report.

The usual preventive action has been taken by the Inspectors in all of the cases of Scarlet Fever under observation, such as purification of premises, removal of infected articles to the Disinfecting Station, circulation of printed instructions, etc.

#### DIARRHŒA.

The prevalence of autumnal Diarrhœa was much less marked than during the previous year (a total of 85 fatal cases during the autumn quarter, as compared with 133 in 1880, see Appendix A., Table XII.) This is probably to a great degree accounted for by the heavier rainfall and lower temperature (and consequently less rapid rate of filth decomposition and air pollution) during last autumn than the preceding one. Thus, in the third quarter of 1881, the rainfall was 12·39 inches, the highest weekly mean temperature 64·8° F., and the mean temperature of



the quarter 56·9° F.; whereas the rainfall of the corresponding quarter of 1880 was 8·69, the highest weekly mean temperature 65·3° F., and the mean temperature of the quarter 58·2° F.

But the explanation of reduction of mortality from Diarrhœa by the theory of rainfall and temperature, does not apply to the fact that the marked improvement has been local rather than general, having occurred in three only of the five registration Sub-districts of the Borough.

The deaths returned as due to Diarrhœa are:—

In St. Andrew's	...	...	4	in 1881	against	19	in 1880.
„ All Saints'	...	...	3	„	„	16	„
„ Byker	...	...	12	„	„	28	„

Whereas, the decrease in Westgate Sub-district was much less in comparison (44 against 51), and in St. Nicholas' there was an actual increase (9 against 7).

An inquiry into the causes of the prevalence of autumnal Diarrhœa begun in Newcastle in 1880, at the instance of the Local Government Board, was continued as well as circumstances allowed last year in accordance with the plan proposed by Dr. Ballard, one of the Medical Inspectors to the Board. The inquiry will, it is expected, be resumed next autumn. The investigation has disclosed various defective sanitary arrangements in house property, to which the attention of the Inspector of Nuisances has been directed. Most of these have been dealt with; some, however, remain as before.

#### (2.)—SANITARY DEFECTS OF HOUSE PROPERTY IN BLOCK.

*George Street West.*—In continuation of the statement made in last Annual Report (p. 21), the owners of tenement property in George Street West, who had failed to carry out the required sanitary alterations, were summoned to appear before the magistrates, and the work has since been done.

*Centre Street.*—The wet and offensive condition of privy middens on the west side of Centre Street, and the confined nature of the yards rendering the privy and midden mode of refuse collection peculiarly objectionable in this locality, were reported on in January. The privies were reconstructed and the drains repaired.

*Gouldburn's Yard, Newgate Street.*—In July the following report was submitted on the insanitary condition of Gouldburn's Yard, Newgate Street:—

“In this yard is an exceedingly offensive privy midden containing a large pool of foul liquid. The midden is very large, dilapidated, and uncemented. Liquid is oozing from it across the yard. There is a large deposit of horse manure on the open ground. The offensive condition of the midden and the deposit of horse manure on the ground were reported in May, 1879. It was then stated that plans

had been passed for the rebuilding of the premises. Since then no improvement of the buildings has taken place, and the sanitary state of the premises is worse than before."

The Sanitary Committee ordered that proceedings should be taken against the owner. Since then the Inspector reports that "the ashpit has been drained and the manure removed."

*Stowell Street.*—The deficiency of water-closet accommodation in Stowell Street (Court at No. 9) was reported in January. No improvement is reported.

*Long Row, Byker Hill.*—The absence of "conveniences" of any kind for the large block of tenement property at Byker Hill, known as "Long Row," formed the subject of various minor reports; one of these, submitted to the Sanitary Committee in October, recommended the adoption of the ash-closet system of refuse disposal. The report was confirmed, and the Row is now sufficiently provided with ash-closets.

### (3).—SANITARY DEFECTS OF PROPERTY NOT IN BLOCK.

A number of individual houses have been specially reported to the Sanitary Committee as having defects of different kinds in regard of "conveniences," rooms unfit for human habitation, dampness or flooding with water, etc. The results reported by the Inspector in consequence of action taken by him, are, in most cases, the application of the remedy indicated.

### (4).—REFUSE REMOVAL.

Among other matters relating to refuse removal the following have been brought before the Sanitary Committee during the year:—The improper deposit of liquid and solid refuse of various kinds on the street-way by tenants of the lower class of houses, the daily cleansing and occasional flushing of streets of the lowest class, the condition of certain slaughter houses, stable-middens, etc. Instructions have been given by the Committee to the responsible officers.

*Improper Deposits in Old Quarries.*—The following report was made to the Sanitary Committee in November:—

"On the 21st inst., in consequence of a complaint received, the Medical Officer of Health visited the Old Quarry (known as Groves'), near Bell Street, Arthur's Hill, and found that a large quantity of soft, moist organic matter, of various kinds, had recently been deposited there. These deposits consisted partly of shop refuse, but chiefly of what the man in charge appropriately called "street muck." Deposits of this kind have been frequently complained of, and have been strictly forbidden by the Committee. On various occasions, on the order of the Committee, such deposits are reported as having been removed from this quarry and other places.

The Inspector was instructed to serve notice for the immediate removal of the material referred to on the present occasion. As there is abundant facility for



covering up offensive matter with dry innocuous material brought to the quarry, it is impossible to know certainly whether this notice is complied with.

In the interests of health it is important that such deposits should be put a stop to."

Notice was served for the offensive matter to be removed forthwith. There is no record of the result.

#### 5.—REMOVAL OF CORPSES TO THE DEAD-HOUSE BY THE SANITARY AUTHORITY.

Orders have been given by the Medical Officer of Health for the removal of seventeen corpses to the dead-house, in consequence of the Relieving Officers having declined to undertake the interment unless this were first done. This proceeding has been referred to in former reports.

#### 6.—DAIRIES AND COWSHEDS.

During the year five persons have made application to begin to occupy as cowsheds buildings not previously occupied as such. Four of these referred to old buildings, and were not granted by the Local Authority. The remaining application referred to a new building, the plans for which were approved by the Town Improvement Committee. This was granted.

Two defective cowsheds have been closed on notice from the Inspector, under the Dairies Order. No proceedings before the Magistrates have been taken during the year.

#### 7.—FLAGGING, PAVING, AND SEWERAGE.

Through the courtesy of the Borough Engineer, Mr. W. Geo. Laws, the Medical Officer of Health is able to submit the subjoined list of fifty-one streets, representing a total length of 7,282 yards, in which flagging, paving, and sewerage works were completed or commenced in 1881:—

#### LIST OF STREETS COMMENCED IN 1880, BUT NOT FINISHED TILL 1881.

Name.	Length in Yards.
Skinner Burn Road ... ..	100
Pitt Lane ... ..	190
Parker Street ... ..	350
Back Stanhope and Stone Street ... ..	260
Russell Terrace and Back Street between Russell Terrace and Ridley Street ... ..	180
Back Abbotsford Terrace ... ..	63
Warwick Street ... ..	125
Toward Street ... ..	50
Road over Moor on West Side of Barracks Extension ... ..	260
Back Hamilton and Stanhope Street ... ..	350
Oxnam Crescent ... ..	160
Total ... ..	<u>2,088</u>

## LIST OF STREETS COMMENCED AND FINISHED IN 1881.

Name.	Length in Yards.
John Street (north end) ... ..	35
Back Lane behind Jesus Hospital ... ..	50
Stanhope Street ... ..	175
Darnell Street ... ..	180
Back Bowman Terrace, Back Brougham Place, and Bowman Street ..	110
Dunn Terrace ... ..	75
Malcolm Street ... ..	240
Misletoe Road ..	165
Dunn Place ... ..	50
Salisbury Street ... ..	36
Back Dunn Terrace and Salisbury Street ... ..	60
Wilkie Street ... ..	58
Back Clayton Park Square and Eskdale Terrace ... ..	273
Beaumont Street ... ..	245
Back Jefferson and Hamilton Street ... ..	293
Back Akenside Terrace ... ..	128
Fern Avenue (east end) ... ..	126
Dalton Street ... ..	183
Back Burton Street and Byker Bank ..	107
Warkworth Street ... ..	125
Tindal Street ..	115
Bayley Street ... ..	170
Mawson Street ... ..	67
Bryson Terrace ... ..	89
Back Crossley Terrace ... ..	160
Cross Street from Sheraton Street to Morpeth Street...	60
Rosedale Street ... ..	190
Back Flora and Grafton Street ... ..	50
St. Mary's Place ... ..	80
Back Bryson Terrace and Mawson Street ... ..	78
Back Mawson and Morrison Street ... ..	68
Back Flora and Matthew Street ... ..	97
Total ... ..	3,978

## STREETS COMMENCED WITH IN 1881, BUT NOT FINISHED TILL 1882.

Name.	Length in Yards.
Back Clifford and Parker Street ... ..	144
Back Robinson and Potts Street ... ..	96
Robinson Street ... ..	100
Back Corbridge and Parker Street ... ..	233
Back Matthew and Edwin Street ... ..	103
John Street (north end) ... ..	80
Albion Place... ..	130
Back Heaton and Addison Road ... ..	330
Total ... ..	1,216



## (8.)—GENERAL WORK OF THE SANITARY STAFF.

(a.)—*Nuisance Removal*.—3,567 cases of nuisance have been dealt with by the Inspectors during the year. A classified list of the cases with the parish or township in which they occurred is given in Appendix A, Table XVII. The number is about 16 per cent. less than that for the preceding year, when 4,271 cases were reported. This decrease, which is not, however, general throughout the various divisions of the Borough, is doubtless chiefly due to the increased attention paid by the District Inspectors to the removal of infected bedding and other articles to the disinfecting apparatus. (See following paragraph.)

(b.)—*Disinfection*.—508 cases of infectious disease of different kinds, or an increase of about 12 per cent. over the returns of the previous year, have been disinfected by the Inspectors. The increase of the present year is not such as to call for special comment. The work done by the disinfecting apparatus is almost double that of the previous year.

## (9.)—UNWHOLESOME PROVISIONS.

The amount of meat found unfit for food and destroyed by the Inspector of Provisions is larger than usual (see Appendix A., Table XIV). The increase is to a great extent due to the crushing of oxen and sheep in ship transit from the Continent during stormy weather. Three persons have been fined £5 each and costs by the Magistrates for having in possession unsound meat intended for human food.

A special *Report on the Result of an Examination of Bacon and Ham* was submitted to the Sanitary Committee in November, by the Medical Officer of Health.

## (10.)—BUILDING PLANS.

The sanitary objections on account of which building plans presented during the year were not initialed by the Medical Officer of Health are summarised below:—

	No. of Cases.
Small bed-rooms ... ..	32
Do. without fire-place or special ventilation ...	10
Yard space deficient ... ..	19
Interference with light or ventilation of adjoining property...	17
Plan deficient in information ... ..	11
Waste-pipes not disconnected ... ..	9
Plan re-submitted after rejection, and without remedying defects ... ..	8
Ventilation or lighting of block insufficient ... ..	5
"Conveniences" insufficient ... ..	4
Indoor W.C. in improper situation ... ..	4
Ground overcrowding ... ..	3
Soil-pipe not ventilated ... ..	3

					No. of Cases.
Proposed building material improper	...	...	...	...	3
Proposed drainage into cesspool	...	...	...	...	3
Width of back street insufficient	...	...	...	...	2
Height of rooms deficient	...	...	...	...	2
Ventilation deficient	...	...	...	...	2
Privy midden defective	...	...	...	...	2
Walls deficient in thickness	...	...	...	...	1
Dwelling-room insufficiently lighted	...	...	...	...	1
Dwelling-room below street level	...	...	...	...	1
Bed-room opening directly upon streetway	...	...	...	...	1
Drain below dwelling-room	...	...	...	...	1
Ashpit in improper situation	...	...	...	...	1
Drainage defective	...	...	...	...	1
No yard space	...	...	...	...	1
Stable in too close proximity to house	...	...	...	...	1
Manure pit do. do.	...	...	...	...	1
Cowshed in improper situation	...	...	...	...	1
Cowshed not in accordance with regulations	...	...	...	...	1

The following memoranda on the building operations in Newcastle during the year are kindly supplied by the Borough Engineer:—

#### VENDORS' PLANS.

Total number vendors' plans submitted	...	...	...	...	15
Do. do. passed	...	...	...	...	9
Do. do. rejected	...	...	...	...	6

#### BUILDING PLANS.

Total number of plans submitted	...	...	...	320	
Approved on first submission	...	...	...	141	= 141
Do. second do.	...	...	...	59	= 118
Do. third do.	...	...	...	8	= 24
Do. fourth do.	...	...	...	4	= 16
Do. fifth do.	...	...	...	1	= 5
Standing rejected on books	...	...	...	16	= 16
New plans	...	...	...	<u>229</u>	= <u>320</u>

#### HOUSES BUILT DURING THE YEAR.

District.					Self-contained.	Flats.
Jesmond	...	...	...	...	42	...
Byker	...	...	...	...	11	82
Westgate	...	...	...	...	18	46
St. Andrew's	...	...	...	...	11	...
Elswick	...	...	...	...	6	17
Heaton	...	...	...	...	26	42
All Saints'	...	...	...	...	1	...
Totals	...	...	...	...	115	187
						2
					Houses	<u>374</u>

New accommodation provided for 489 families, or, at the rate of five persons to a family, 2,445 persons.



## (11.)—SANITARY LEGISLATION.

During the past year it has been the duty of the Medical Officer of Health to advise the Sanitary Authority in their responsible office of making provision for the benefit of the public health in the "Newcastle-upon-Tyne Improvement Bill" now before Parliament. The proceedings under this head form subject matter for the Report for the year 1882.

HENRY E. ARMSTRONG,  
MEDICAL OFFICER OF HEALTH.

*Town Hall, June, 1882.*

## BOROUGH OF NEWCASTLE-UPON-TYNE.

1881.

## APPENDIX A.

TABLE I.

POPULATION (ESTIMATED BY THE REGISTRAR GENERAL TO THE MIDDLE OF THE YEAR)—145,675.

Registration Sub-Districts.	Births Registered in 52 Weeks, ended 31st December, 1881.					Deaths Registered in 52 Weeks, ended 31st Dec., 1881.		
	Male.		Female.		Total.	Male.	Female.	Total.
	Legitimate.	Illegitimate.	Legitimate.	Illegitimate.				
Westgate ... ..	1,136	53	1,081	60	2,330	686	661	1,347
St. Andrew's ... ..	271	12	244	15	542	172	164	336
St. Nicholas' ... ..	125	12	147	8	292	233	175	408
All Saints' ... ..	459	24	443	35	961	276	265	541
Byker ... ..	577	24	583	24	1,208	269	263	532
Borough Total ... ..	2,568	125	2,498	142	5,333	1,636	1,528	3,164

The births represent a rate of 36·6, and the deaths a rate of 21·7 per 1,000 estimated population. The increase of births over deaths is 2,169.

TABLE II.

ANNUAL DEATH-RATE PER 1,000 LIVING IN NEWCASTLE FOR THE PAST FIVE YEARS, COMPARED WITH THE AVERAGE RATE IN 23 TOWNS IN THE UNITED KINGDOM.

	1877.		1878.		1879.		1880.		1881.	
	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.
1st Quarter	24·7	24·2	25·5	23·2	27·8	25·3	25·5	23·1	23·8	21·7
2nd "	23·9	23·2	23·2	22·0	22·7	25·3	20·4	21·8	20·5	21·8
3rd "	20·5	20·2	23·5	25·4	18·4	20·8	23·2	22·7	20·5	21·4
4th "	23·0	21·8	25·2	24·1	24·6	22·7	21·5	20·8	22·1	21·0
Annual Rate	23·0	22·3	24·4	23·7	23·4	23·5	22·7	22·3	21·7	21·7



TABLE III.

RATES OF DEATH IN THE DIFFERENT CLASSES OF DISEASE PER 1,000 POPULATION IN THE BOROUGH, AND IN EACH REGISTRATION SUB-DISTRICT.

Registration Sub-Districts.	Westgate (V.W.)* excluding Benwell and Fenham.	St. Andrew's.	St. Nicholas' (H.)†	All Saints'.	Byker.	Borough.
Population (estimated to middle of 1881)	61,714	18,714	9,841	24,349	31,057	145,675
CLASS.	Rate per 1,000	Rate per 1,000	Rate per 1,000	Rate per 1,000	Rate per 1,000	Rate per 1,000
1. Zymotic‡ ... ..	4.0	2.0	4.7	3.7	2.5	3.5
2. Constitutional ... ..	3.7	3.0	6.4	3.5	3.0	3.6
3. Local ... ..	8.8	8.4	15.0	9.7	7.0	8.9
4. Developmental ... ..	4.3	3.3	5.1	3.4	3.4	3.9
5. Violent Deaths (classed)	0.1	0.3	4.7	0.3	0.2	0.5
6. Do. (not classed)	0.1	0.3	1.2	0.2	0.4	0.3
Sudden Deaths (causes unascertained, causes not specified, or ill- defined) ..	0.9	0.7	2.0	1.4	1.0	1.0
Totals ... ..	21.9	18.0	39.1	22.2	17.5	21.7

\* Workhouse and Vagrant Ward.

† Hospital.

‡ The deaths in the Zymotic Class are corrected by distribution of those occurring at the Fever Hospital to the sub-district from which each came.

TABLE IV.

DEATHS FROM ALL CAUSES IN EACH SUB-DISTRICT ACCORDING TO ORDER OF CLASSIFICATION OF THE REGISTRAR GENERAL.

ORDER.	Westgate.	St. Andrew's	St. Nicholas*	All Saints'.	Byker.	TOTALS.	
	Number of Deaths.	Number of Deaths.	Number of Deaths.	Number of Deaths.	Number of Deaths.	Deaths from all Causes.	Percentage of Total Deaths in each of the different orders to total deaths from all causes.
<b>CLASS I.</b>							
<b>ZYMOTIC DISEASES.</b>							
1. Miasmatic ...	206	30	67	83	61	447	14.1
2. Enthetic ...	17	3	1	2	4	27	8.5
3. Dietic ...	16	2	2	5	3	28	8.8
4. Parasitic ...	...	1	...	...	1	2	0.6
	239	36	70	90	69	504	16.0
<b>CLASS II.</b>							
<b>CONSTITUTIONAL DISEASES.</b>							
1. Diathetic...	26	10	14	13	14	77	2.4
2. Tubercular ...	203	47	49	73	81	453	14.3
	229	57	63	86	95	530	16.8
<b>CLASS III.</b>							
<b>LOCAL DISEASES.</b>							
<b>Diseases of—</b>							
1. Nervous System...	199	48	40	79	65	431	13.6
2. Organs of Circulation ...	76	25	35	21	30	187	6.0
3. Respiratory Organs ...	192	56	46	97	83	474	15.0
4. Digestive ...	51	16	14	19	24	124	4.0
5. Urinary ...	21	10	9	14	11	65	2.0
6. Organs of Generation ...	1	...	2	1	...	4	0.1
7. „ Locomotion ...	4	2	2	3	...	11	0.3
8. Integumentary System..	2	1	...	1	...	4	0.1
	546	158	148	235	213	1300	40.1
<b>CLASS IV.</b>							
<b>DEVELOPMENTAL DISEASES.</b>							
<b>Diseases of—</b>							
1. Children ...	47	16	12	17	41	133	4.2
2. Adults ...	9	2	4	9	6	30	1.0
3. Old People ...	114	17	11	19	17	178	5.6
4. Nutrition...	96	26	23	38	43	226	7.1
	266	61	50	83	107	567	17.9
<b>CLASS V.</b>							
<b>VIOLENT DEATHS.</b>							
1. Accident or Negligence...	7	1	39	7	5	59	1.9
2. Homicide ...	...	2	3	...	...	5	0.2
3. Suicide ...	1	2	4	1	1	9	0.3
4. Executions ...	...	...	...	...	...	...	0.00
	8	5	46	8	6	73	2.3
Violent Deaths not classed	6	5	12	5	11	39	1.2
Sudden Deaths (causes un-	...	...	...	1	2	3	0.07
ascertained) ...	...	...	...	...	...	...	...
Causes not specified or ill-	53	14	19	33	29	148	4.7
defined ...	59	19	31	39	42	190	6.0
Totals ...	1,347	336	408	541	532	3,164	

\* The number in St. Nicholas' sub-district is increased by 144 deaths in the Infirmary, and 32 in the Fever Hospital; 62 of the former came to that Institution from beyond the Borough.



TABLE V.—AGES AT DEATH.

Periods.	Westgate.	St. Andrews'.	St. Nicholas'.	All Saints'.	Byker.	Total in Borough.
Under 1 Year ...	346	81	73	155	165	820
1 Year and under 5 Years...	173	36	38	98	83	428
5 Years " 20 " ...	101	26	47	45	45	264
20 " " 40 " ...	180	52	104	57	64	457
40 " " 60 " ...	198	61	86	95	88	528
60 " " 80 " ...	299	66	52	75	74	566
80 " and upwards ...	50	14	8	16	13	101
Total (all ages) dying during the 52 weeks ended 31st Dec., 1881	1,347	336	408	541	532	3,164

TABLE VI.

WEEKLY MEAN NUMBERS OF DEATHS AT SEVEN ÆTAL PERIODS.

Periods.	Westgate.	St. Andrews'.	St. Nicholas'.	All Saints'.	Byker.	Total in Borough.
Under 1 Year ...	6.7	1.6	1.4	3.0	3.2	15.8
1 Year and under 5 Years...	3.3	0.7	0.7	1.9	1.6	8.2
5 Years " 20 " ...	2.0	0.5	0.9	0.9	0.9	5.0
20 " " 40 " ...	3.5	1.0	2.0	1.1	1.2	8.8
40 " " 60 " ...	3.7	1.2	1.7	1.8	1.7	10.2
60 " " 80 " ...	5.8	1.3	1.0	1.4	1.4	10.9
80 " and upwards ...	1.0	0.3	0.2	0.3	0.3	2.0
Totals ...	26.0	6.6	7.9	10.4	10.3	60.9
Percentage of Deaths under 1 Year to total Deaths in Sub-District, &c. ...	25.7	24.1	18.0	28.7	31.0	25.9

TABLE VII.

BIRTHS AND DEATHS IN THE DIFFERENT QUARTERS IN THE YEARS  
1878, 1879, 1880, 1881.

	BIRTHS.				DEATHS.			
	1878.	1879.	1880.	1881.	1878.	1879.	1880.	1881.
First Quarter ...	1,399	1,371	1,378	1,392	838	929	862	825
Second " ...	1,376	1,366	1,462	1,342	796	930	848	790
Third " ...	1,394	1,345	1,322	1,309	917	765	849	781
Fourth " ...	1,318	1,299	1,273	1,290	872	834	776	768
Totals ...	5,487	5,381	5,435	5,333	3,423	3,458	3,335	3,164

TABLE VIII.

DEATHS OF CHILDREN UNDER 1 YEAR AND PERSONS OVER 60 YEARS  
IN 1878, 1879, 1880, 1881.

	NUMBER OF DEATHS.							
	Under 1 Year of Age.				Over 60 Years.			
	1878.	1879.	1880.	1881.	1878.	1879.	1880.	1881.
First Quarter ... ..	208	215	223	166	125	153	166	189
Second „ ... ..	158	199	225	182	138	189	150	184
Third „ ... ..	311	212	294	273	106	119	122	147
Fourth „ ... ..	211	158	185	199	139	120	174	148
Totals .. ...	888	784	927	820	508	581	612	668

TABLE IX.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS  
ENDED 31ST DECEMBER, 1881.

CLASS.	CAUSE OF DEATH.	Westgate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	Total in Borough.
I.—ZYMOTIC DISEASES.	ORDER 1.						
	Small-pox ... ..	1	...	1	...	...	2
	Measles ... ..	4	...	2	1	...	7
	Scarlet Fever (Scarlatina) ... ..	2	...	...	2	...	4
	Croup ... ..	1	...	...	...	...	1
	Whooping-cough ... ..	10	3	1	7	2	23
	Enteric or Typhoid Fever ... ..	...	...	...	1	...	1
	Erysipelas ... ..	5	...	2	...	1	8
	Diarrhœa ... ..	43	3	8	15	14	83
	Simple Cholera ... ..	...	...	...	...	1	1
	ORDER 2.						
	Syphilis ... ..	10	2	...	2	3	17
	ORDER 3.						
	Privation ... ..	1	...	1	...	1	3
	Want of Breast-milk .. ..	5	...	...	...	...	5
	ORDER 4.						
	Thrush ... ..	...	1	...	...	1	2
II.—CONSTITUTIONAL DISEASES.	ORDER 2.						
	Scrofula ... ..	2	...	3	1	2	8
	Tabes Mesenterica ... ..	9	1	2	1	7	20
	Phthisis ... ..	...	...	1	1	1	3
	Hydrocephalus ... ..	...	4	1	1	6	12
	Carried forward ... ..	94	14	22	32	39	200



TABLE IX.—CONTINUED.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS  
ENDED 31ST DECEMBER, 1881.

CLASS.	CAUSE OF DEATH.					Westgate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	Total in Borough.	
III.—LOCAL DISEASES.	Brought forward ... ..					94	14	22	32	39	200	
	ORDER 1.											
	Convulsions ... ..					52	16	5	28	12	113	
	Brain Disease, etc. ... ..					9	1	...	5	7	22	
	ORDER 2.											
	Heart Diseases, etc. ... ..					2	...	...	...	...	2	
	ORDER 3.											
	Laryngitis ... ..					...	1	...	...	...	1	
	Bronchitis ... ..					21	4	7	24	18	74	
	Pneumonia ... ..					7	4	2	2	2	17	
	Lung Diseases, etc. ... ..					3	1	...	...	...	4	
	ORDER 4.											
	Gastritis ... ..					1	...	...	...	...	1	
	Enteritis ... ..					3	...	...	2	3	8	
	Intussusception ... ..					1	...	...	...	...	1	
IV.—DEVELOP- MENTAL DISEASES.	Stomach Disease, etc. ... ..					1	...	1	1	...	3	
	Jaundice ... ..					2	...	...	1	1	4	
	ORDER 8.											
	Skin Disease, etc. ... ..					1	...	...	...	...	1	
	ORDER 1.											
	Premature Birth ... ..					27	11	12	5	23	78	
	Cyanosis ... ..					...	...	...	...	1	1	
	Spina Bifida ... ..					2	...	...	1	3	6	
	Other Malformations ... ..					...	2	...	...	...	2	
	Teething ... ..					12	1	...	4	5	22	
	ORDER 4.											
	Atrophy and Debility ... ..					82	22	19	37	37	197	
	V.—VIOLENT DEATHS, &c.	ORDER 1.—(ACCIDENT OR NEGLIGENCE.)										
		Poison ... ..					1	...	1	...	...	2
		Suffocation ... ..					2	...	1	4	1	8
ORDER 2.—HOMICIDE.												
Murder and Manslaughter ... ..					...	...	1	...	..	1		
ORDER 4.												
Violent Deaths (not classed) ... ..					1	...	1	...	1	3		
Causes not specified or ill-defined ... ..					23	4	1	9	12	49		
Representing a rate of 5·6 per 1,000 per Annum. {					TOTAL ... ..	346	81	73	155	165	820	

TABLE X.

UNCERTIFIED DEATHS IN EACH SUB-DISTRICT DURING THE 52 WEEKS ENDED  
31ST DECEMBER, 1881.

ALLEGED CAUSE OF DEATH.	Westgate.			St. Andrew's.			St. Nicholas'.			All Saints'.			Byker.			Total.		
	Under 1 Year.	1 Year and Under 2	2 Years and Above.	Under 1 Year.	1 Year and Under 2	2 Years and Above.	Under 1 Year.	1 Year and Under 2	2 Years and Above.	Under 1 Year.	1 Year and Under 2	2 Years and Above.	Under 1 Year.	1 Year and Under 2	2 Years and Above.	Under 1 Year.	1 Year and Under 2	2 Years and Above.
Apoplexy ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Convulsions ...	9	2	2	3	...	...	3	...	...	8	1	...	6	1	...	29	4	2
Convulsions —																		
Debility from want of Breast Milk ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
A Convulsion Spasm of the Glottis ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
A Convulsive Fit ...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	1	...	1
An Epileptic Fit ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...
Heart Disease ...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2
Bronchitis ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...
Acute Hip Joint Disease ...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Premature Birth ...	7	...	...	5	...	...	6	...	...	...	...	...	5	...	...	23	...	...
Old Age ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Debility ...	3	...	...	2	...	...	2	...	...	10	...	...	3	...	...	20	...	...
Debility from Birth ...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	2	...	...
Congenital Debility ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...
Believed from Paralysis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Suddenly from some Natural Cause, apparently softening of the Brain ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Believed from Old Age and Fractured Leg through an Accidental Fall ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Believed from some Natural Cause ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Believed from a Convulsion ...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	3	...	...
Some Natural Cause ...	3	...	6	...	...	...	...	...	...	...	2	2	...	3	5	...	11	...
Suddenly from some Natural Cause ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Some Natural Cause — probably Heart Disease ...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tetanus ...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Lead Poisoning ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Severe Cold after previous Illness ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Spasm of Glottis ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Difficult Labour ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Total ...	27	3	11	10	...	2	12	...	1	23	1	7	18	2	5	90	6	26



TABLE XI.

RETURN OF DEATHS FROM MIASMATIC DISEASES FOR THE 52 WEEKS ENDED 31ST  
DECEMBER, 1881, CORRECTED BY DISTRIBUTION OF THOSE OCCURRING IN THE  
FEVER HOSPITAL TO THE REGISTRATION SUB-DISTRICT FROM WHICH EACH CAME.

	Number in Entire Borough.	REGISTRATION SUB-DISTRICTS.				
		West- gate.*	St. Andrew's	St. Nicholas'	All Saints'.	Byker.
Total Miasmatic Deaths ... ..	447	218	33	43	83	70
INCLUDING—						
Small-pox ... ..	10	4	3	1	...	2
Measles ... ..	35	16	2	4	9	4
Scarlet Fever ... ..	52	15	8	5	18	6
Diphtheria ... ..	6	1	...	2	1	2
Whooping Cough ... ..	70	30	7	9	17	7
Typhus Fever ... ..	20	9	...	5	...	6
Enteric Fever ... ..	38	23	2	1	3	9
Simple Continued Fever ... ..	6	3	...	...	2	1
Diarrhœa ... ..	149	86	8	11	20	24
Other Miasmatic Diseases ... ..	61	31	3	5	13	9
Annual Rate of Death from Miasmatic Diseases per 1,000 population of each Sub-district }	3·0	3·5	1·8	4·4	3·4	2·3
Measles ... ..	0·2	0·3	0·1	0·4	0·4	0·1
Scarlet Fever ... ..	0·4	0·2	0·4	0·5	0·7	0·2
Whooping Cough ... ..	0·5	0·5	0·4	0·9	0·7	0·2
Enteric Fever ... ..	0·3	0·4	0·1	0·1	0·1	0·3

\* Excluding Benwell and Fenham

TABLE XII.

LOCALITY OF DEATHS FROM PREVALENT ZYMOTIC DISEASES, CORRECTED BY DISTRIBUTION OF THOSE OCCURRING IN THE FEVER HOSPITAL TO THE SUB-DISTRICT FROM WHICH EACH CAME.

DEATHS IN WESTGATE SUB-DISTRICT.															
LOCALITY.	SCARLET FEVER.				WHOOPIING COUGH.				ENTERIC FEVER.				AUTUMNAL DIARRHOEA.		
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 1st October, 1881.		
													Under 1 Year.	1 Year & under 2.	All Ages.
Centre street	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3
Diana street	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Pitt street	...	3	...	1	...	...	...	...	...	1	...	...	1	...	1
Buckingham street	...	...	3	...	...	...	...	...	...	...	...	...	1	...	1
Oakes place	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1
Seaham street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Wellington street	...	...	...	...	...	1	...	...	...	...	...	...	1	...	1
Bell street	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1
Beaconsfield street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Westgate road	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Villa cottage	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Blandford street	...	...	...	...	...	...	...	...	...	...	...	...	2	1	3
Chapel lane	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Back George street	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Sunderland street	...	1	...	...	...	...	...	...	...	...	...	...	1	...	1
Elswick row	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1
Rye hill	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Park road	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Malvern street	...	...	1	...	...	...	...	...	...	...	...	...	1	...	1
Wharnccliffe street	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Sycamore street	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3
Norfolk street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Scotswood road	...	...	...	...	...	...	...	...	...	...	2	...	1	...	1
Panmure street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Errington street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Bentinck street	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Elswick grange	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Workhouse	...	...	...	...	3	5	...	...	4	1	...	...	...	...	9
Back Marlboro' street.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Westmoreland lane	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Noble street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Herbert street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Meldon street	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Blenheim street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Stanhope street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Churchill street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Stanley street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Stone street	...	...	...	...	1	2	...	...	...	...	...	...	...	...	...
Cottenham street	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...
William street	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Tyneside terrace	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Hamilton street	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Duke street	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Portland street	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
Crispin street	...	...	...	...	...	...	1	...	...	1	1	...	...	...	...
Grove street	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Carried forward	5	6	...	1	12	10	1	1	7	7	4	...	28	2	43



TABLE XII.—CONTINUED.

LOCALITY OF DEATHS FROM PREVALENT ZYMOTIC DISEASES, CORRECTED BY  
DISTRIBUTION OF THOSE IN THE FEVER HOSPITAL.

DEATHS IN WESTGATE SUB-DISTRICT.—Continued.															
LOCALITY.	SCARLET FEVER.				WHOOPIING COUGH.				ENTERIC FEVER.				AUTUMNAL DIARRHŒA.		
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 1st October, 1881.		
													Under 1 Year.	1 Year & under 2.	All Ages.
Brought forward...	5	6	...	1	12	10	1	1	7	7	4	...	28	2	43
Waterloo street	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Derby street	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railway street	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Peel street	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Villa place	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Clumber street	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Mather street	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Bayley street	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Mill lane	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Brunel street	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Edward street	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Bath lane terrace	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Durham street	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Rendel street	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Back John street	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Total ...	5	6	1	4	12	10	3	5	7	7	7	3	28	2	44

DEATHS IN ST. ANDREW'S SUB-DISTRICT.															
Liverpool street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Strawberry lane	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Percy street	...	...	1	...	...	...	...	...	...	1	...	...	...	1	1
Hood street	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Gallowgate	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...
Spital tongues	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Market street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Nixon street	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Morpeth street	...	...	...	1	...	2	1	...	...	...	...	...	...	...	...
St. Thomas' square	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Carlhol street	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Shakespeare street	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Total	...	2	2	4	2	2	3	...	1	1	...	...	2	1	4

TABLE XII.—CONTINUED.

LOCALITY OF DEATHS FROM PREVALENT ZYMOTIC DISEASES, CORRECTED BY  
DISTRIBUTION OF THOSE IN THE FEVER HOSPITAL.

DEATHS IN ST. NICHOLAS' SUB-DISTRICT.															
LOCALITY.	SCARLET FEVER.				WHOOPIING COUGH.				ENTERIC FEVER.				AUTUMNAL DIARRHŒA.		
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 1st October, 1881.		
													Under 1 Year.	Year & under 2.	All Age.
Groat Market	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
The Side	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Tuthill stairs	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Back Forth terrace	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Friars	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
White Friar place	...	...	...	...	2	...	...	...	...	...	...	...	...	...	1
Scotch Arms yard	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Westgate road	...	...	1	...	...	...	...	...	...	...	...	...	1	...	1
Zion's court, West- gate road	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Nun street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Regent street	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...
Clayton street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Fever Hospital	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Waller's Yard, Forth Banks	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Forth Banks	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Stowell square	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Close	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Total	...	...	1	4	5	1	3	...	1	...	...	...	7	1	9

DEATHS IN ALL SAINTS' SUB-DISTRICT.															
Wall knoll	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Back Trafalgar street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Napier street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Ridley street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Henry street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Melbourne street	...	1	...	...	...	...	1	...	...	...	...	...	1	...	2
Regent terrace	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Grenville street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Johnson's entry	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Howard street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
New road	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Spencer's entry	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Wood entry	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
St. Ann's street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Cut bank	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Scott's entry, Sand- gate	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Albert street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Sarah street	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...
Silver street	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
Carried forward...	4	1	1	...	2	...	1	...	...	...	...	...	11	3	16



TABLE XII.—CONTINUED.

LOCALITY OF DEATHS FROM PREVALENT ZYMOTIC DISEASES, CORRECTED BY  
DISTRIBUTION OF THOSE IN THE FEVER HOSPITAL.

DEATHS IN ALL SAINTS' SUB-DISTRICT.—Continued.													
LOCALITY.	SCARLET FEVER.				WHOOPIING COUGH.				ENTERIC FEVER.				AUTUMNAL DIARRHŒA.
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 1st October, 1881.
													Under 1 Year.
Brought forward...	4	1	1	...	2	...	...	1	...	...	...	...	11 3 16
Quayside	1	...	...	...	...	...	...	...	...	...	...	...	...
Gibson street	...	...	...	...	...	...	...	1	1	...	...	...	...
Minden street	...	...	...	...	1	...	...	...	...	...	...	...	...
Concord court, Man- or street	...	...	...	...	1	...	...	...	...	...	...	...	...
Union street	...	1	...	...	...	...	...	...	...	...	...	...	...
Heath's court, Manor chare	...	...	...	1	1	...	...	...	...	...	...	...	...
Victoria square, Gib- son street	...	1	...	...	...	...	...	...	...	...	...	...	...
New road	...	...	...	...	1	...	...	...	...	...	...	...	...
Bird-in-Bush yard	...	...	...	...	...	1	...	...	...	...	...	...	...
Stepney lane	...	...	...	1	...	1	...	...	...	...	...	...	...
Bell's court	...	...	...	...	...	1	...	...	...	...	...	...	...
Industrial dwellings, Garth Heads	...	...	...	...	...	1	...	...	...	...	...	...	...
Soaphouse lane	...	...	...	...	...	1	...	...	...	...	...	...	...
Shield street	...	...	...	...	...	...	...	...	...	1	...	...	...
Baker's yard, Painter Heugh	...	...	...	...	...	1	...	...	...	...	...	...	...
Laidler's court	...	...	1	...	...	...	...	...	...	...	...	...	...
Little Blagdon street	...	...	...	...	...	2	...	...	...	...	...	...	...
Trafalgar street	...	...	...	1	...	...	...	...	...	...	...	...	...
Manors	...	...	...	1	...	...	...	...	...	...	...	...	...
Copland terrace	...	...	...	1	...	...	...	...	...	...	...	...	...
Blagdon street	...	...	...	2	...	...	...	...	...	...	...	...	...
Keelmen's Hospital	...	...	...	1	...	...	...	...	...	...	...	...	...
Ridley villas	...	...	...	...	...	...	...	...	...	...	1	...	...
Robson's entry, New road	...	...	...	...	...	...	1	...	...	...	...	...	...
Total	5	3	2	8	3	3	8	3	1	...	1	1	11 3 16
DEATHS IN BYKER SUB-DISTRICT.													
Albion row	...	...	...	...	...	...	...	...	...	...	...	...	1
Quality row	...	...	...	...	...	...	...	...	...	...	...	...	1
Day's buildings	...	...	...	...	...	...	...	...	...	...	...	...	1
Mawson street	...	...	...	...	...	...	...	...	...	...	1	...	1
Stepney road	...	...	...	...	...	...	...	...	...	...	1	...	1
Byker buildings	...	...	...	1	...	...	...	...	...	...	1	...	1
Cook street	...	...	...	...	...	...	...	...	...	...	1	...	1
Corbridge street	...	...	...	...	...	...	...	...	...	...	...	...	1
Parker street	...	...	...	...	...	...	1	...	...	...	...	...	...
Carried forward	...	...	...	1	...	...	1	...	...	...	...	4	1 8

TABLE XII.—CONTINUED.

LOCALITY OF DEATHS FROM PREVALENT ZYMOTIC DISEASES, CORRECTED BY  
DISTRIBUTION OF THOSE IN THE FEVER HOSPITAL.

DEATHS IN BYKER SUB-DISTRICT.—Continued.													
LOCALITY.	SCARLET FEVER.				WHOOPIING COUGH.				ENTERIC FEVER.				AUTUMNAL DIARRHŒA.
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 2nd October, 1880.
													Under 1 Year.
Brought forward...	...	...	...	1	...	...	...	1	...	...	...	...	4 1 8
Conyer's road	...	...	...	...	...	...	...	...	1	...	...	...	1 ... 1
Thornborough street	...	...	...	...	...	...	...	...	...	...	1	...	1 ... 1
Windsor crescent	...	...	...	...	...	...	...	...	...	...	...	...	1 ... 1
Fern avenue	...	...	...	...	...	...	...	...	...	...	...	...	1 ... 1
Addison street	...	...	...	...	1	...	...	...	...	...	1	...	...
Shields road	...	...	...	...	...	...	...	1	1	...	1	...	...
Bermondsey street	2	...	...	...	...	...	...	...	...	...	...	...	...
Low Heaton haugh	...	...	...	...	...	1	...	...	...	...	...	...	...
Portland road	...	2	...	...	...	...	...	...	...	...	...	...	...
Grafton street	...	...	...	...	...	...	...	...	...	1	...	...	...
Thompson street	...	...	...	...	...	...	1	...	...	...	...	...	...
St. Peter's	...	...	...	...	...	...	...	...	...	...	1	...	...
Brandling village	...	...	1	...	...	...	...	...	...	...	...	...	...
Stepney street	...	...	...	...	...	...	1	...	...	...	...	...	...
Benton terrace	...	...	...	...	...	...	1	...	...	...	...	...	...
Matthew street	...	...	...	...	...	...	...	...	...	...	1	...	...
Total	...	2	2	1	1	1	3	2	2	1	1	4	8 1 12

SUMMARY OF TABLE XII.

REGISTRATION SUB-DISTRICTS.	SCARLET FEVER.				WHOOPIING COUGH.				ENTERIC FEVER.				AUTUMNAL DIARRHŒA.
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 1st Oct., 1881.
													Under One Year.
Westgate	5	6	1	4	12	10	3	5	7	7	7	3	28
St. Andrew's	2	2	...	4	2	2	3	...	1	1	...	...	2
St. Nicholas'	...	...	1	4	5	1	3	...	1	...	...	...	1
All Saints'	5	3	2	8	3	3	8	3	1	...	1	1	11
Byker	2	2	1	1	1	1	3	2	2	1	1	4	8
Grand Total of Deaths	14	13	5	20	23	17	20	10	12	9	9	8	56 9 85



TABLE XIII.

ADMISSIONS TO AND DEATHS AT THE NEWCASTLE FEVER HOSPITAL FROM  
1ST JANUARY TO 31ST DECEMBER, 1881.

DISEASES.	ADMISSIONS.												DEATHS.												
	Jan.	Feb.	Mar.	April	May.	June.	July.	g.	Sept.	Oct.	Nov.	Dec.	Total	Jan.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Scarlet Fever	1	...	1	2	...	...	...	...	2	...	...	...	6	1	1	...	...	...	...	...	...	...	...	...	2
Typhus Fever	3	...	...	1	...	...	10	20	23	6	4	2	69	...	...	1	...	...	3	3	9	2	1	...	19
Enteric Fever	4	5	5	5	...	...	1	1	...	4	2	3	30	...	1	...	...	...	...	...	...	...	2	3	
Small-pox*	...	...	4	3	9	9	3	4	1	16	16	7	72	...	2	...	1	1	...	...	1	1	1	1	8
Febricula	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Syphilis	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Simple continued Fever	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	
Chicken-pox	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Catarrh...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Pustular Acrid...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Roseola†	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Pneumonia	...	1	...	...	...	...	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	
TOTAL	8	6	10	12	11	9	14	26	26	28	22	15	187	1	4	1	1	1	3	3	10	3	2	3	32

\* The state of the Small-pox patients as to Vaccination is shown in Appendix C, page 50.

† Sent as a case of Small-pox.

TABLE XIV.

RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS EXAMINED DURING 1881.

SUSPECTED PROVISIONS EXAMINED.	Amount.	CONDITION.		BAD—HOW DISPOSED OF.	
		Fit for Food.	Unfit for Food.	Destroyed by Order of Justice.	Destroyed with Consent of Owner.
Carcases of Beef...	188	143	45	...	45
Quarters " ...	11	2	9	5	4
Carcases of Veal...	9	5	4	...	4
" Mutton	238	116	122	6	116
" Pork...	156	105	51	...	51
Sides of Bacon	12	1	11	...	11
Bacon, Hams	33	...	33	...	33
Tins of Preserved Roast Beef ...	58	...	58	58	...
Turkeys	27	...	27	...	27
Geese	16	...	16	...	16
Ducks	11	...	11	...	11
Barrels of Oysters	1	...	1	...	1

Of the 143 carcasses of beef returned as fit for food, 71 of the animals had been bruised more or less during transit. All the bruised portions were cut off and destroyed.

Three persons have been summoned before the Magistrates for being the owners of unsound meat intended for human food. Each was fined £5 and costs.

WM. HEDLEY, INSPECTOR.

TABLE XV.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH  
DEPARTMENT DURING THE YEAR 1881.

144 Half Straw Mattresses	13 Feather Pillows
34 Bed Ticks	1 Straw Bed
49 Flock Beds	1 Flock Mattress
34 " Bolsters	1 Hair "
61 " Pillows	12 Rugs
4 Rabbit Down Beds	2 Sheets
2 " " Bolsters	1 Quilt
5 " " Pillows	10 Bolster Cases
4 Feather Beds	11 Pillow "
1 " Bolster	

INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS.	
FROM THE BOROUGH.	FROM THE FEVER HOSPITAL.
73 Feather Beds	49 Beds
75 Flock "	57 Mattresses
251 Mattresses	152 Quilts
348 Pillows	404 Blankets
126 Bolsters	218 Rugs
194 Blankets	844 Articles of Wearing Apparel
150 Quilts	282 Pillows
37 Bed Hangings	10 Bolsters
167 Carpets	89 Bed Ticks
651 Articles of Wearing Apparel	36 Pieces Waterproof Sheeting
365 Miscellaneous Articles	145 Books
	17 Miscellaneous Articles

TABLE XVI.

SUMMARY OF CASES DISINFECTED BY THE INSPECTORS OF NUISANCES DURING  
THE YEAR ENDED 31ST DECEMBER, 1881.

PARISH OR TOWNSHIP.	NATURE OF DISEASE.							TOTAL.
	Scarlet Fe er.	Enteric Fever.	Typhus Fever.	Measles.	Small ox	Diph- theria.	Fever (other varie- ties.)	
Elswick ... ..	18	22	24	16	21	...	...	101
Westgate ... ..	31	21	6	25	15	1	2	101
St. Andrew's ... ..	22	17	1	2	14	...	1	57
St. John's ... ..	18	1	1	7	6	...	...	33
St. Nicholas' ... ..	17	...	9	3	3	2	...	34
All Saints' ... ..	50	14	3	28	4	...	2	101
Jesmond ... ..	3	2	...	...	2	...	...	7
Byker ... ..	4	32	11	7	15	1	4	74
Total ... ..	163	109	55	88	80	4	9	508





TABLE XVIII.

SUMMARY OF PROCEEDINGS TAKEN BEFORE THE MAGISTRATES OF THE BOROUGH  
BY THE SANITARY DEPARTMENT DURING THE YEAR 1881.

Nature of Complaint.	No. of Cases.	How Disposed of.	Amounts of Penalties Imposed.
Defective Privies and Ash- pits ... ..	7	5 did Work and paid Costs, 1 dis- missed, and 1 ordered to be done by Magistrates and pay Costs ...	..
Defective Drains & Sinks	3	2 did Work and paid Costs, and in the remaining case the work was done and summons withdrawn ...	...
Defective and Obstructed Water-closets ... ..	2	Work was done in each case and Costs paid ... ..	...
An undrained Ashpit ...	1	Did Work and paid Costs ... ..	...
Rooms unfit for human habitation ... ..	8	7 did Work and paid Costs, and 1 closed rooms and paid Costs ...	...
Obstructed Drain ...	1	Did Work and paid Costs ... ..	...
Smoke Nuisance ... ..	1	Did Work and paid Costs ... ..	...
Whitewashing ... ..	1	Did Work and paid Costs ... ..	...
Overcrowding ... ..	1	Removed and paid Costs ... ..	...
Cleansing and White- washing of Slaughter- house ... ..	1	Fined 10s. 6d. and Costs ... ..	0 10 6
Number of Pigs kept in too close proximity to the Dwelling Rooms ...	1	Pigs removed and Costs paid ...	...
Accumulations of Manure	3	1 did Work and paid Costs, 1 fined 20s. and Costs, and 1 fined 2s. 6d. and Costs ... ..	1 2 6
To show cause why an Order should not be made to enter Premises for the purpose of pro- viding Water-closets ...	3	All agreed to have Water-closets pro- vided. Work done ... ..	...
<b>TOTAL</b> ... ..	<b>33</b>		<b>£1 12 6</b>



TABLE XIX.

1881.—RAINFALL, MEAN TEMPERATURE, &amp;c.

1ST QUARTER.			2ND QUARTER.			3RD QUARTER.			4TH QUARTER.		
Week ended.	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended.	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended.	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended.	Rainfall. Inches.	Mean Temp. Deg. Fahr.
1881.											
Jan. 8...	0.00	37.7	April 9...	0.02	37.2	July 9...	1.46	59.3	Oct. 8...	0.38	50.5
" 15...	1.40	27.2	" 16...	0.43	45.3	" 16...	00.9	64.8	" 15...	1.06	47.9
" 22...	0.65	23.7	" 23...	0.05	40.2	" 23...	0.16	59.3	" 22...	0.65	44.8
" 29...	0.00	26.5	" 30...	0.32	48.9	" 30...	0.62	57.3	" 29...	1.23	34.8
Feb. 5...	0.21	39.8	May 7...	0.61	47.6	Aug. 6...	0.66	61.7	Nov. 5...	0.26	40.3
" 12...	0.97	35.5	" 14...	0.00	52.7	" 13...	0.58	57.0	" 12...	0.00	50.6
" 19...	0.47	37.2	" 21...	0.31	50.3	" 20...	1.59	56.8	" 19...	0.13	48.2
" 26...	0.35	35.3	" 28...	0.78	53.6	" 27...	2.46	53.0	" 26...	0.27	45.1
March 5...	1.65	29.5	June 4...	0.00	61.6	Sept. 3...	0.83	51.8	Dec. 3...	0.87	44.0
" 12...	0.56	46.3	" 11...	0.27	48.5	" 10...	0.49	54.6	" 10...	0.30	44.0
" 19...	0.10	46.0	" 18...	1.00	54.2	" 17...	0.21	54.1	" 17...	1.11	36.5
" 26...	0.30	35.2	" 25...	0.30	59.6	" 24...	2.27	55.4	" 24...	0.49	37.3
April 2...	0.15	35.0	July 2...	0.17	56.1	Oct. 1...	0.97	54.2	" 31...	0.02	47.5
TOTAL...	6.81	Mean 34.9	TOTAL...	4.35	Mean 50.4	TOTAL...	12.39	Mean 56.9	TOTAL...	6.77	Mean 44.0

Total Rainfall during the Year 1881 = 30.32 inches.

Mean Temperature during the Year 1881 = 46.5 deg. Fahr.

## APPENDIX B.

## REPORT ON RESULT OF EXAMINATION OF BACON AND HAM.

In reply to a petition signed by a considerable number of Provision Merchants, and addressed to the Sanitary Authority in March last, requesting that instruction might be given to the Medical Officer of Health to procure samples of Bacon and Ham from the retail dealers for examination, and report on the same as regards their freedom from Parasites, or the reverse :—

The Sanitary Authority issued a circular to the signatories of the document referred to, suggesting that samples should also be supplied by the wholesale dealers free of charge, and requested that the petitioners would give facility to the Medical Officer of Health in the investigation.

When applied to for samples, the wholesale dealers, being under misapprehension as to the quantity of Bacon and Ham required for microscopic examination, demurred at first to the request of the Sanitary Authority, but on understanding what was required, with two exceptions, willingly furnished all the necessary samples free of charge, and in every way furthered the enquiry. The dealers who were in the combined wholesale and retail line of business, at once and without charge, supplied everything that was asked for, and frequently offered unnecessarily large samples for examination.

The mode of proceeding adopted was as follows :—The merchants and dealers with the two exceptions before named, on being requested, gave the Medical Officer of Health and Inspector of Provisions access to the whole of the Pork, Bacon, or Ham on their premises. Several small samples were taken by choice of the officers from various pieces of meat, such parts of the lean flesh being selected as were known to be common seats of parasites in affected pigs. The samples were then submitted to microscopical analysis, four or more portions of each sample being separately and carefully examined.

In all, the number of firms applied to was 22, viz. :—9 wholesale, 5 retail, and 8 both wholesale and retail dealers.

The parts of the pig examined were sections of the muscular tissue from the eye, tongue, neck, diaphragm, belly, side, shoulder, intercostal spaces, loin and ham, and also Bath chap and sausage.

The nationality and number of the pigs from which the sections were taken were as follows :—

American	...	...	...	...	...	...	...	...	83
Danish	...	...	...	...	...	...	...	...	20
Irish	...	...	...	...	...	...	...	...	15
German	...	...	...	...	...	...	...	...	12
Wiltshire	...	...	...	...	...	...	...	...	8
Cumbrian	...	...	...	...	...	...	...	...	5
Scotch	...	...	...	...	...	...	...	...	1
Doubtful	...	...	...	...	...	...	...	...	3
Total	...	...	...	...	...	...	...	...	147

The 147 samples examined as above described, represent between five and six hundred separate microscopical researches.

*Result—No Trichina was found.*—With the exception of the German bacon, all the samples examined were free from Measles. Of a consignment of 12 sides of this German bacon, 11 were infested with Measles. These were destroyed.

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

Town Hall, 1st November, 1881.



## APPENDIX C.

RETURN OF CASES OF SMALL-POX TREATED IN THE NEWCASTLE FEVER  
HOSPITAL DURING 1881.

	Confluent.	Died.	Semi- Confluent.	Died.	Discrete.	Died.
Not Vaccinated ... ..	6	3	4	...	5	...
Doubtful as to Vaccination ... ..	...	...	2	...	...	...
Vaccination Reported, no Cicatrix	2	2	1	...	...	...
Vaccinated—						
1 Cicatrix (a) Good... ..	...	...	3	...	3	...
(b) Indifferent ... ..	...	...	1	...	1	...
Very Faint ... ..	2	1	...	...	...	...
2 Cicatrices (a) Good... ..	...	...	...	...	11	...
(b) Indifferent ... ..	2	...	1	...	6	...
Very Faint ... ..	...	...	1	...	1	...
3 Cicatrices (a) Good... ..	...	...	...	...	9	...
(b) Indifferent or Very	...	...	...	...	...	...
Faint ... ..	...	...	...	...	2	...
4 Cicatrices (a) Good ... ..	...	...	...	...	4	...
(b) Indifferent or Very	...	...	...	...	...	...
Faint ... ..	1	1	...	...	2	...
More Cicatrices (a) Good ... ..	...	...	...	...	2	...
(b) Indifferent or	...	...	...	...	...	...
Very Faint ... ..	...	...	...	...	...	...
Totals ... ..	13	7	13	...	46	...

From the above it will be seen that seventy-two cases of Small-pox were admitted—fifteen were unvaccinated; of these six had the disease in the confluent (severe) form, and three died.

In two there was doubt as to vaccination; each of these had the semi-confluent (moderately severe) form, and both recovered.

In three, vaccination was reported to have been performed in youth, but no cicatrix was perceptible; two of these died from confluent Small-pox; the other recovered after the semi-confluent form of the disease.

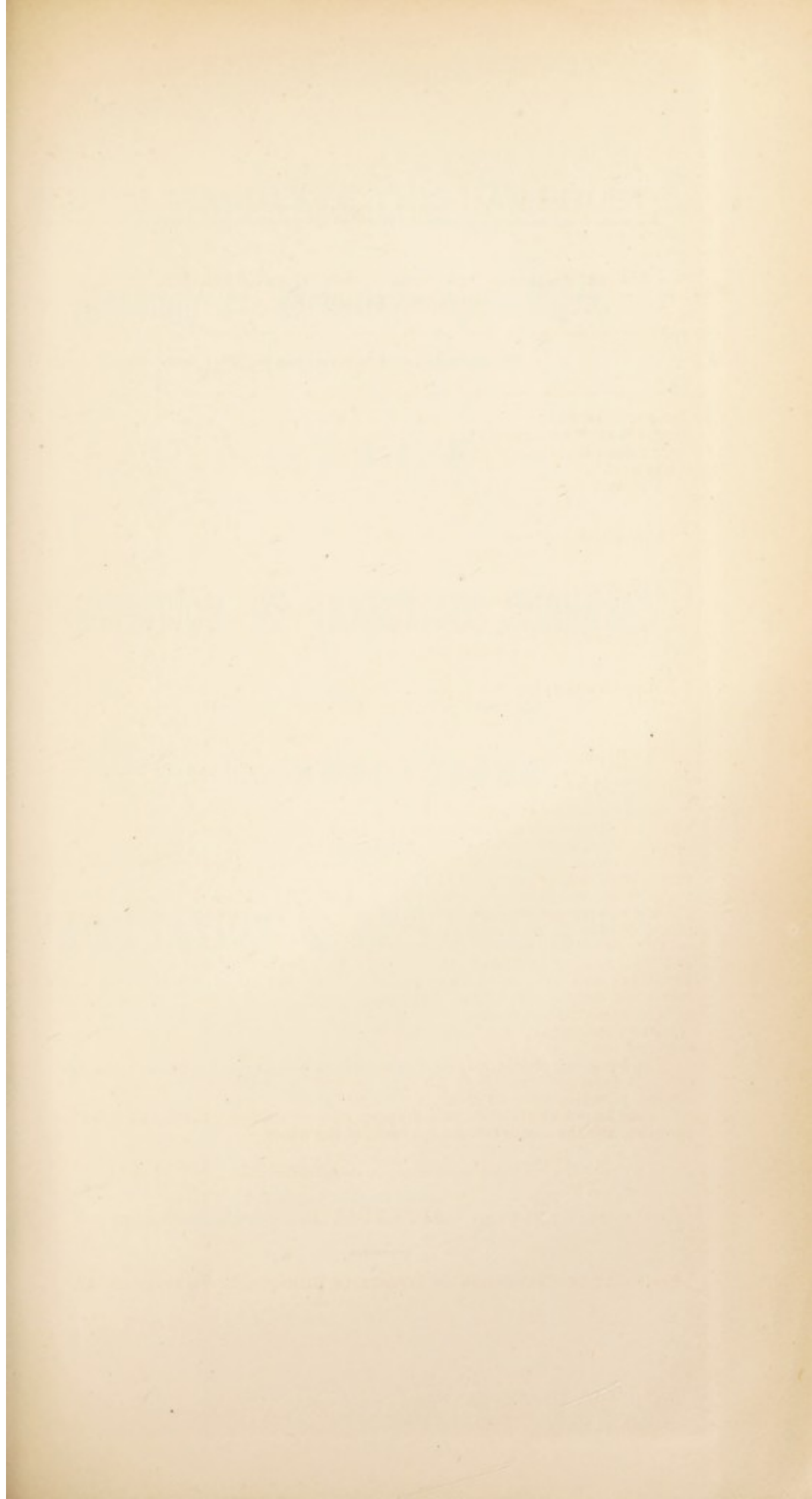
Fifty-two cases occurred in vaccinated persons. Of these vaccinated cases, five had the confluent form, and two died; six had the semi-confluent form, and all recovered; and forty-one had the discrete, or mildest, form of the disease, and all recovered. Several of the latter were so slightly affected that, but for the occurrence of other cases in their families, their cases might have been overlooked. In some instances the eruption was limited to four or five pimples, and in one patient there was only one.

The foregoing results may be summarised thus:—In the known unvaccinated cases of Smallpox treated, 40 per cent. suffered from the confluent form of the disease, of which one-half died.

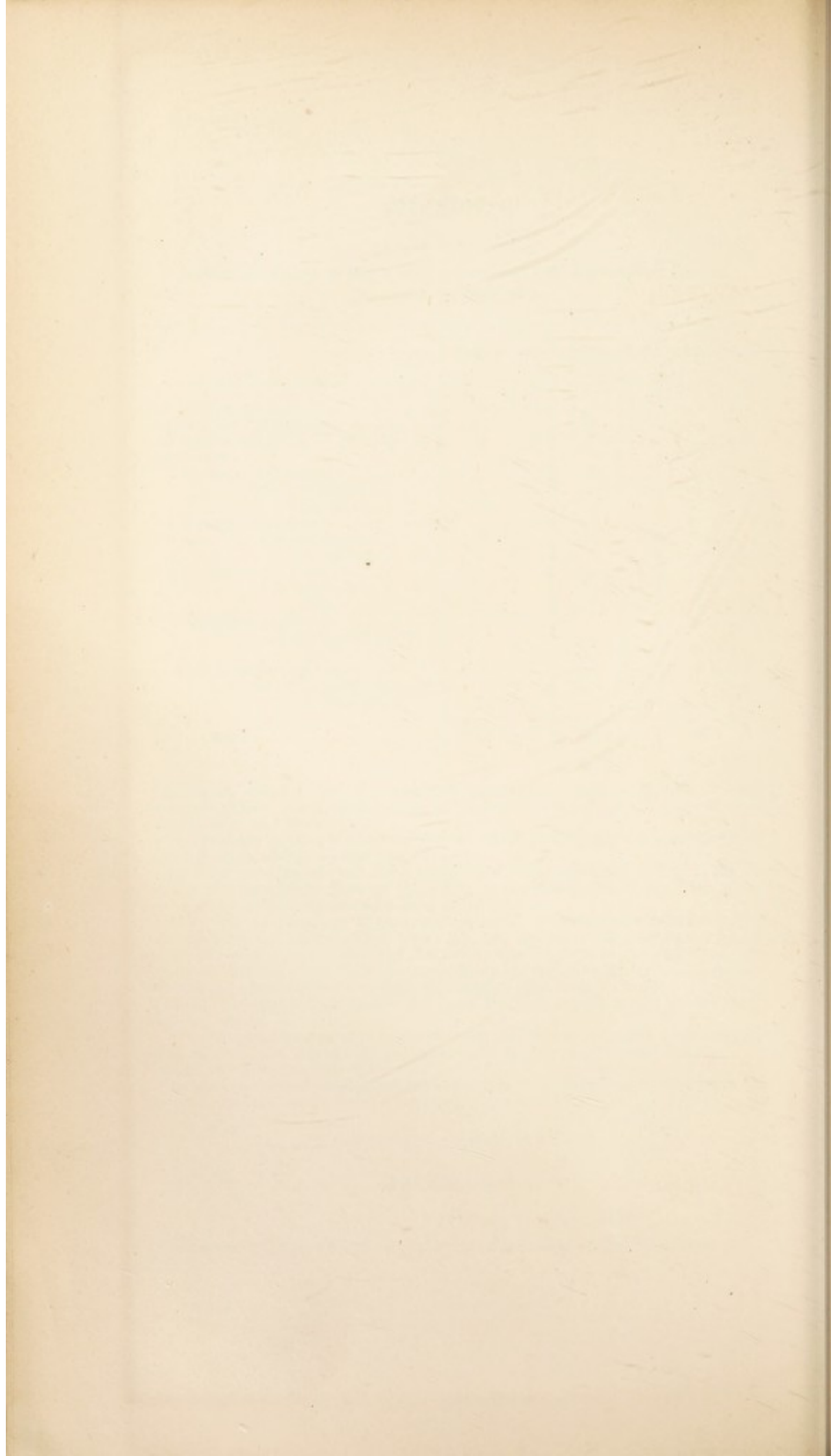
In the known vaccinated cases, the proportion of confluent cases was below 10 per cent., and the deaths below 4 per cent., of the whole.

## APPENDIX D.

PAMPHLET ON PREVENTION OF INFECTIOUS DISEASES, RE-VACCINATION, &c.







PLEASE CIRCULATE THIS PAMPHLET.

Borough of Newcastle-upon-Tyne.

---

N O T I C E

ON THE

PREVENTION OF INFECTIOUS DISEASES

AND

RECOMMENDATIONS

IN FAVOUR OF

VACCINATION & RE-VACCINATION.

---

PRINTED BY THE AUTHORITY OF THE SANITARY COMMITTEE OF THE  
CORPORATION.

Newcastle-upon-Tyne :  
ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.

1881.



PLEASE RETURN TO THE LIBRARY

UNIVERSITY OF MICHIGAN LIBRARY

NOTICE

EXAMINATION OF EXISTING DISSEMINATED

BY THE LIBRARY

UNIVERSITY OF MICHIGAN LIBRARY

BOROUGH OF NEWCASTLE-UPON-TYNE.

---

PREVENTION OF INFECTIOUS DISEASES.

---

NOTICE.

ALL persons in whose households there is Infectious Disease, such as SMALL-POX, SCARLET FEVER, "FEVER," MEASLES, &c., are CAUTIONED against the REMOVAL of CLOTHING or OTHER ARTICLES FROM THEIR HOUSES, except by the Officers of the Corporation, for the purpose of being purified in the Disinfecting Apparatus.

SUCH ARTICLES MUST NOT ON ANY ACCOUNT BE TAKEN TO ANY OF THE PUBLIC WASHHOUSES.

The Public are also cautioned against permitting any person whilst recovering from any such disease to leave his house until he has been certified by his medical attendant as being quite free from fear of conveying Infection to others; and until his Clothing, Bedding, and the infected Premises have been thoroughly disinfected to the satisfaction of the Medical Attendant or the Medical Officer of Health.

Wilful exposure of any infected person or infected article of any kind, so as to endanger the public health, renders the offender liable to a heavy penalty.

Proceedings will be taken against any person offending against the Law.



Printed instructions for the protection of the healthy from the infected sick in households, and the precautions recommended, may be had at my Office in the Town Hall. I shall be happy to give any further advice or assistance in my power respecting the cause of outbreaks of Infectious Disease or the means of preventing their spread.

### RE-VACCINATION.

As is well known, Small-pox has for a considerable time been epidemic in London. A few months ago the disease broke out in Newcastle. Fortunately the cases in this town have not been numerous, and it is hoped that under proper precautionary and protective measures the outbreak may soon be extinguished. But the disease has shown itself in several parts of the town, and has caused about thirty attacks, of which three have terminated fatally.

This is a warning that none should disregard. It behoves us, while we may, by every available means to protect ourselves and those around us against the foe of whose malignancy we had, but ten years ago, a terrible experience.

Against no infectious or "catching" disease other than Small-pox has man in his own person the means of guarding himself. Isolation and disinfection of the patient and his surroundings are the only processes by which other plagues can be stayed; and these measures are so difficult of proper application, so irksome, so little believed in, that they can seldom be said to obtain a fair trial, and not unfrequently fail in their effects; but against Small-pox

a man may shield himself and his children through life, so that they may live, eat, and sleep amid the disease without fear, *because they have been made insusceptible to its effects!*

This shield is vaccination.

Heads of families are earnestly recommended to have every member of their households who have reached seven years of age re-vaccinated without delay. The comparatively few individuals who through negligence or ignorance have not been vaccinated at all, or their guardians, are urged, as they value their health or that of those dear to them, to seek, while there is yet time, that protection which is open to them, not only free of charge, but of which, for their own and the public good, they are by law required to avail themselves. To those whom prejudice, founded on "a little knowledge," has tempted to break that law, let the unquestionable rhetoric of the facts, which my own opportunities for observation enable me to present in these pages, appeal. What object can I, or medical men in general, have in distorting such facts? And yet the almost universal consensus of professional opinion in favour of vaccination, based though it be on personal experience and the stubborn statistics of large institutions such as the various Small-pox hospitals in the metropolis, is discarded by some, in favour of the rash, biassed, and often (it is to be feared) unprincipled, assertions of individuals, who have had neither the opportunity for observation, nor the medical training necessary to turn such opportunity to account\*,

\* As an example of a section of the class from which the opposition comes, it may be stated that an anti-vaccination agitator in this town has been both vaccinated and re-vaccinated, without, so far as I know, the slightest cause for dissatisfaction.



and some of whom attempt to lay at the door of vaccination the diseases of themselves and their offspring due to their own misconduct.

Some vaccinations are more efficient than others. The protective influence of primary vaccination, *i.e.* the vaccination of a person for the first time, is in exact relation to the quality, and (within a certain limit) the quantity of the permanent scars left by the operation. Thus, a distinct vaccination-mark is better than a faint one; two marks are better than one, and three than two, and so on. By the term "better" is to be understood *more powerful*, and probably also *more lasting in protective agency*.

None but successful vaccinations, *i.e.* those leaving permanent scars, can be counted.

Owing to changes in the system, the effect of vaccination in infancy is liable to wear out. This is sometimes the case even with Small-pox itself, of which disease I have treated eight persons for second attacks. It is therefore advisable to have the operation repeated at a later age. Under ordinary circumstances it is sufficient if it be done for the second time at the age of fourteen or fifteen years; but in times of danger, all persons of seven years and upwards should be re-vaccinated. This re-vaccination, if successfully performed, may be regarded as almost absolutely protective for life.

Abundant proof of the accuracy of the foregoing statements may be found in Government Reports and other reliable publications. Having had under my own care at the Newcastle Fever Hospital upwards of 900 cases of Small-pox in the epidemic of 1871-72, it may be useful to give my experience of this epidemic:—

The mortality of the vaccinated was ... 9.5 per cent.  
 That of the unvaccinated was ... 42.4 „

The subjoined statistics are taken from my Report for the 68th year of the Hospital (May, 1871, to April, 1872), which included the heaviest portion of the epidemic:—

49 vaccinated cases died.  
 112 unvaccinated „

In 48 of the fatal vaccinated cases noted—

25	had only 1 cicatrix, or scar, of former vaccination.		
10	had 2 cicatrices	„	„
7	„ 3 „	„	„
3	„ 4 „	„	„
3	„ more than 4	„	„

As evidence in favour of re-vaccination, the following is quoted from the same Report:—

The best proof of the protection afforded by re-vaccination is shown by the nurses and servants in the Hospital. Each was re-vaccinated by myself before taking duty; and though, from repeated changes, we had many nurses and domestic servants, not one caught Small-pox. On the other hand, shortly after the return of fever, which had been totally absent for several months, three nurses were struck down with typhus, and a fourth fell a victim to the same disease about a month later.

Further, although cases were received from nearly every public institution of the town, including the Infirmary, Child's Hospital, Blind Asylum, Lying-in Hospital, the Home at Brandling Place, Penitentiary, Gaol, Vagrant Ward, Police Stations, hotels, factories, schools, ships, and even from the Byker Small-pox Convalescent Home, not one single official or servant connected with the Fever and Small-pox Hospitals has contracted Small-pox whilst doing duty during this epidemic.

The experience of the past is being confirmed by the outbreak now going on. The following is a copy of a



reply to an inquiry for information as to the cases of Small-pox that had up to the date of the letter occurred in Newcastle:—

[COPY.]

HEALTH DEPARTMENT, TOWN HALL,  
9th May, 1881.

DEAR SIR,

In reply to yours of the 5th inst., I beg to send you the subjoined particulars of the cases of Small-pox recently under my care at the Newcastle Fever Hospital:—

Ten cases have been admitted. Of these two were unvaccinated, of which one (a child) died. This case was confluent and very severe. The other unvaccinated case is one of the semi-confluent form of the disease.

Of the eight vaccinated cases one died, viz., that of a woman aged 58 years. The vaccination cicatrix of this patient, if such it really was, was so small and indistinct as scarcely to be perceptible, and had not the usual appearances of such a scar. The woman said that she had been vaccinated in infancy, but there was not the usual evidence that this had been properly done.

With regard to the remaining cases, the mildest have been those in which the vaccination marks were most distinct. (Your servant was one of these.)

The known vaccinated cases (even the confluent) have all been milder in character, and have had smaller and more superficial pustules, and have run a shorter course, than the known unvaccinated.

None of the vaccinated cases are likely to be followed by permanent pitting or scars of any kind, but this is not the case with the unvaccinated patient now likely to recover.

I have been unable to gain information about cases in private practice.

In a report of mine issued during the epidemic of 1871-2, I mentioned the fact that Small-pox was a disease which, so to speak, *picked out* the unvaccinated from the vaccinated members of the community. This has been exemplified in the recent outbreak in the case of one of your own family (unvaccinated), who was, to the best of my knowledge, the first to suffer after the disease broke out in a household in Byker, into which it had been introduced by a sailor from Antwerp. In the Byker household, in which three other cases occurred, of which two were fatal, all were removed to Hospital, and are included in the preceding statistics. The incidence of the disease in this family was exactly in the inverse ratio of protection from vaccination. Thus, the fatal unvaccinated case was that of a strong, previously healthy child of three years of age; the fatal alleged vaccinated case was that of a woman of advanced age, in whom all protection (if vaccination had ever been properly done, which is not likely) had become exhausted through lapse of time. The third case (very mild) was that of a man of about 35 years of age having two cicatrices of vaccination in infancy. The fourth and last member of the household (vaccinated) escaped the disease.

With regard to the protective influence of vaccination, I stated to you, on a former occasion, that throughout the epidemic of 1871-2 not one of my nurses or servants at the Fever Hospital (all of whom were vaccinated before entering on duty) took Small-pox; whereas, in my experience of the Hospital of nearly twenty years, very few nurses exposed to the contagium of typhus (which is usually considered a less infectious disease than Small-pox) have escaped. This has been confirmed by recent experience, not one of the staff having suffered from Small-pox.

I am, Dear Sir,

Yours faithfully,

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

To .....

A still later illustration of the propensity of Small-pox to single out the unvaccinated has come under my notice. In a family of six persons, of whom two are unvaccinated, one of the latter is now convalescent after, and the other is undergoing, a severe form of the disease. After their removal to Hospital a third member of the family (vaccinated) became unwell, and in a few days developed five or six papules of modified Small-pox. This case was very slight, and might almost have been overlooked but for the preceding cases in the house. The other members of the family have hitherto escaped infection.

The fact that in some epidemics more vaccinated than unvaccinated persons actually contract Small-pox is, if considered alone, apt to mislead, since it might, at the first glance, be regarded as evidence against the efficacy of vaccination. But when considered in connection with the other fact that about 95 per cent. of the population are vaccinated, it will at once be seen that the proportion of vaccinated cases of Small-pox to vaccinated persons in the community is vastly below the proportion of unvac-



inated cases of the disease to unvaccinated persons. Thus if, for example, in a population of 10,000 persons, of which 95 per cent. are vaccinated, an epidemic causes 300 cases of small-pox, viz., 200 in vaccinated and 100 in unvaccinated people,—although the actual number of the former cases is double that of the latter, the relative proportion is:—

Vaccinated cases to vaccinated persons ...	...	2·1 per cent.
Unvaccinated cases to unvaccinated persons ...	...	20·0 „

181, or about 3·1 per cent. of the children born in Newcastle in the year 1879 remained, according to a recent return, unvaccinated at the end of the year.

**Vaccination or Re-vaccination is performed free of charge at the following Public Vaccinating Stations:—**

*Eastern District.*—By Mr. H. W. NEWTON, Surgeon, on TUESDAYS, at 2 p.m., at the “Grace Darling” British Workman, Gibson Street.

*Central District.*—By Mr. JOHN HAWTHORN, Surgeon, on WEDNESDAYS, at 3 p.m., at Nun Street.

*Western District.*—By Mr. ANGUS, Surgeon, and Mr. DAGLIESH, Surgeon, on MONDAYS, at 3 p.m., at the Christian Meeting House, Gloucester Street.

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

*Health Department,*

*Town Hall, Newcastle-upon-Tyne,*

14th June, 1881.

# BOROUGH OF NEWCASTLE UPON TYNE, 1881.

Fortnightly Diagram of Deaths from principal Zymotic Diseases and Diseases of the Respiratory Organs with Temperature and Rainfall.

