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BOROUGH OF NEWCASTLE-UPON-TYNE.

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 1880.



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

1881.

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 1880.

As on former occasions, the Report is divided into three Sections.
The first of these treats of Vital Statistics, the second is a *resumé* of
Advice Tendered and Action Taken, and the third consists of Obser-
vations based on the sanitary experience of the year. Details of each of
these Sections will be found concisely stated in the Table of Contents
preceding the Report.

I have the honour to be,

Sir,

Your obedient Servant,

HENRY E. ARMSTRONG.

MEDICAL OFFICER OF HEALTH.

Health Department, Town Hall,

Newcastle-upon-Tyne,

1st June, 1881.

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BOROUGH OF NEWCASTLE-UPON-TYNE.

REPORT 1880.

(A.)—STATISTICS.

DURING the 53 weeks ended 1st January, 1881, 5,435 births and 3,335 deaths have been registered in the Borough. The births represent an annual rate of 36·4, and the deaths an annual rate of 22·3 per 1,000 of a population of 149,366 at all ages, as estimated by the Registrar-General to the middle of the year.

The rate of mortality of the past year is the lowest that has been recorded, and has been reached on one occasion only during the past thirteen years—viz., in 1877—as appears from the following table:—

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

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.	
	1879.	1880.	1879.	1880.
Westgate* ...	34·2	33·8	21·4	20·0
St. Andrew's ...	26·9	30·0	18·5	18·8
St. Nicholas† ...	30·5	30·2	40·2	36·7
All Saints' ...	36·0	33·5	22·3	21·7
Byker ...	57·7	57·3	29·0	27·5
Borough ...	36·6	36·4	23·5	22·3

* Workhouse.

† Infirmary and Fever Hospital.

As in previous years, the relative values of the foregoing rates for the Registration Sub-district of Byker during 1880 may be regarded as being impaired by an under-estimate of population, only to be corrected by the Census.

The mean annual birth-rate of the Borough per 1,000 population during the last five preceding years is 39·3, and the death-rate 23·4.

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

SUB-DISTRICTS.	Number of Deaths from Miasmatic Diseases.	
	1879.	1880.
Westgate	299	223
St. Andrew's	42	78
St. Nicholas'	55	52
All Saints'	107	109
Byker	121	100
Borough	624	562

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

NUMBER OF DEATHS IN 1880.

	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	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles...	...	1	...	2	3	...	...	...	2	2	...	...	...	...	...	...	...	2	...	2	...	...	3	3	2	8
Scarlet Fever	24	9	14	13	60	2	1	4	8	15	3	7	1	3	14	8	8	4	7	27	7	10	6	2	25				
Diphtheria	...	...	...	...	...	2	...	...	...	2	...	1	...	...	1	...	...	...	1	1	...	...	...	...	2	25
Whooping Cough	24	9	8	8	49	9	11	2	...	22	10	2	1	...	13	16	13	2	2	33	4	3	2	3	12	...			
Typhus...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric (or Typhoid) Fever	1	1	4	4	10	1	1	2	4	8	1	...	1	...	2	...	2	1	1	4	1	1	1	3	6	...			
Simple Contd. Fever	...	...	1	...	2	1	...	...	...	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Diarrhoea	...	5	5	5	15	6	6	7	...	2	...	19	...	21	...	1	7	2	10	...	1	28	4	33	2	...	28	11	41

* Corrected by distribution of the deaths 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 3·3 per 1,000 population, as compared with rates of 3·7 and 4·4 respectively in 1879 and 1878. The principal factors in this class are:—

<i>Scarlet Fever</i> , from which a total of 141 deaths are recorded against 284 in 1879.					
<i>Measles</i>	"	"	15	"	91
<i>Whooping Cough</i>	"	"	129	"	80
<i>Enteric Fever</i>	"	"	30	"	33
<i>Diarrhœa</i>	"	"	172	"	61

DISEASES OF THE RESPIRATORY ORGANS.*

Under this head 511 deaths are recorded as against 562 in the year before. The two leading diseases of the order—Bronchitis and Pneumonia—have together caused 450 deaths, as compared with 501 in the year 1879. The following Table shows the number of deaths from the two diseases combined in each Sub-district during the successive quarters of the year:—

DEATHS FROM BRONCHITIS AND PNEUMONIA.

A.D. 1880.	REGISTRATION SUB-DISTRICTS.					BOROUGH.	Number in previous year (1879).
	Westgate (Workhouse)	St. Andrew's.	St. Nicholas (Infirmary).	All Saints.	Byker.		
1st Quarter ...	48	13	15	49	18	143	147
2nd " ...	41	18	9	30	32	130	142
3rd " ...	34	7	3	10	10	64	97
4th " ...	50	13	7	22	21	113	115
Year ...	173	51	34	111	81	450	501
Number in previous Year (1879).	183	69	41	126	82	501	...

INFANT MORTALITY.

The number of children dying before the completion of the first year of life is 927, as compared with 784, 888, and 842 respectively in 1879, 1878, and 1877:—

	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 estimated Population at all ages.	
	1880.	1879.	1880.	1879.	1880.	1879.
	1880.	1879.	1880.	1879.	1880.	1879.
Westgate ...	370	267	15·8	11·6	5·4	4·0
St. Andrew's ...	103	73	17·0	13·6	5·0	3·6
St. Nicholas' ...	59	79	20·2	25·8	5·0	7·9
All Saints' ...	200	177	20·5	17·0	6·9	6·1
Byker ...	195	188	15·9	15·6	9·1	9·0
Borough ...	927	784	17·0	14·6	6·2	5·3

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

The foregoing Table shows an actual and proportional increase in the infant mortality under each of the three heads of the Table in all the Sub-districts except that of St. Nicholas. This is due to the increased number of deaths of infants under one year of age from the subjoined diseases during last as compared with the previous year:—

	A.D. 1880.	A.D. 1879.
Whooping Cough	57	25
Diarrhoea	95	27
Tabes Mesenterica	34	25
Convulsions	127	117
Bronchitis	125	103
Atrophy and Debility	185	169
TOTAL	623	466

UNCERTIFIED DEATHS,

That is to say, deaths registered *without any medical certificate whatever having been given or inquest held*, have contributed 126 cases to the general mortality, as compared with 124 in the previous year. The proportions borne by the different Sub-districts do not vary materially from those of the year before. As in the year 1879, about two-thirds of these deaths are those of children under one year of age.

Of the 126 cases, 22 are entered on notification from the coroner that no inquest was considered necessary.

As usual, the vague terms "Convulsions, Debility, Premature Birth, &c.," are freely employed (see Table X. Appendix) by the informants as the alleged causes of deaths which, without doubt, are in many instances, due to want, neglect, or crime. It is somewhat remarkable that several of these uncertified cases are returned as being due to causes set forth in a technical manner. The following may be cited as examples of the terms employed:—

Meningitis.
Diabetes.
Scarlatina and Acute Bright's
Disease.
Pertussis.
Pneumonia.
Albuminuria.

Cardiac Disease.
Pelvic Abscesses.
Tubercular Peritonitis.
Tabes Mesenterica.
Supposed Colic, followed by
Syncope.

Names of diseases such as the above as alleged causes of death are not likely to be used by non-professional persons. The inference deducible

from such returns is that they have been made by unqualified practitioners, and have, very properly, been registered as "Uncertified" by the Registrars.

During the year 123 (73 males and 50 females) out of a total of 1,200 accident cases were under the influence of drink when brought to the Newcastle Infirmary,* as compared with 117 cases in the preceding year, and 321 in 1878.

MARRIAGES.

During the year ended March 31st, 1880, the number of marriages registered in Newcastle-upon-Tyne† is 1,700, as compared with 1,646 during the previous twelve months, when the return was, as stated in last Annual Report, "the lowest of an annually decreasing series since the year ended March, 1874." The births in the same area, which have also of late years decreased considerably, show a still further decline during the calendar year 1880, when 5,537 were registered, as compared with 5,602 in 1879.

(B.)—ADVICE TENDERED AND ACTION TAKEN.

(1.)—ZYMOTIC DISEASES.

(a.)—*Fever Hospital.*—The Sanitary Committee have, as usual, been kept informed through the fortnightly reports of the admissions of patients to the Fever Hospital. A list of these is given in the Appendix, Table XIII. The total is 32 against 38 in the previous year. It is highly satisfactory to be able to report that no case of Typhus has been admitted. The total admissions include 18 cases of Enteric, and 9 of Scarlet Fever, 1 of Measles, and 4 of other diseases not febrile. In view of the number of deaths from Scarlet Fever in the Borough during the year (141) some explanation of the small number of admissions to Hospital from this disease is requisite, and will be found under the head of "Observations," (2), p.

Of the patients admitted, the expenses of

13	are chargeable to the Sanitary Authority.
6	" " Poor Law "
1	is " " Watch Committee.
12	are " " Private Persons.
32	

* The information is kindly furnished by the House Surgeon, Mr. C. M. Goyder.

† Superintendent Registrar's district, which includes the Municipal Borough and the Townships of Benwell and Fenham.

The subject of the extension of the Fever Hospital has been carefully considered by the Sanitary Authority during the year. On July 7th, Mr. Ald. Wilson, as Chairman of the Sanitary Committee, presented to the Town Council, and on August 18th, moved the confirmation of, a report showing the necessity for providing better accommodation for this purpose, and submitting a plan for the erection of a New Administrative Department, together with a Ward Block of two storeys, on the site of the present Fever Hospital and a portion of the adjacent land belonging to the Corporation, at a total estimated cost of £5,233. Before confirming the report, the Council resolved to advertise for a different site on which to build. This was done freely, but without producing a response. In accordance with the instruction of the Council, the Medical Officer of Health then prepared a report (dated 31st December, 1880), on the only sites available, viz.:—(1) That at Bath Lane, on which the old Fever Hospital now stands, together with the small plot of additional ground; and (2) that on the land belonging to the Corporation at Byker Hill, on which stands the old building used in 1871-2 as a Convalescent House for Small-pox patients. The report showed the advantages of the former over the latter of these sites, and the total absence, in the past, of any charge, or ground for any charge, against the Hospital for upwards of 80 years erected on it, of infecting the surrounding neighbourhood; and in support of opinions expressed, gave, *in extenso*, a letter from Dr. Thorne Thorne, Medical Inspector to the Local Government Board, the result of a careful personal investigation on the spot. The subsequent action in regard to this question forms matter for the Annual Report for the year 1881.

SCARLET FEVER.

(b.)—*Reports on Outbreaks of Zymotic Disease.*—The following outbreaks of Scarlet Fever among others during the year have been notified to the Sanitary Committee in fortnightly reports:—

One at No. —, Gallowgate, in January, affecting four of six families in one tenemented house, and causing 6 cases, of which 5 were fatal. Infection would appear to have been conveyed by visiting between the occupants and their friends. Even after the funeral of one of the cases, notwithstanding the strong recommendation given to the parents not to allow the attendants at the funeral to meet at the house, the Inspector found that a "funeral feast" was held in the only living room, which was also that where three of the sick children had lived and died. The house and bedding were disinfected, and the relatives cautioned.

One at a dairy in Diana Street.—The report on this case was as follows:—

The family of five persons in all, occupy two small rooms opening into each other, and situated within a very short distance from the byre, which at present contains six cows. The byre is small, and is in a defective condition. The milk vessels were noticed on a table in the back room of the house. The milk is usually distributed by the father of the sick children and his niece, both of whom live in the house. On the recommendation of the Medical Officer of Health, the dairyman agreed to take a lodging for himself and niece, and keep entirely apart from the house so long as infection continues. He also promised to take care that no milk or milk vessels should enter the house. The Inspectors were instructed to keep the premises under observation. It was afterwards ascertained that the niece continued to live in the house, and that she went out daily on the usual round with a boy, who was said to be instructed by her to deliver the milk from the can to the customers. There is no guarantee that the dairyman will abstain entirely from visiting the house, or that he will take proper precaution to prevent the infection of the milk or the vessels. One single act of negligence in this respect may cause a fearful outbreak of Scarlet Fever among his customers. The most certain way to prevent outbreaks in such cases is to compel the removal of the patients to the Fever Hospital; but this at present is seldom (almost never) possible. To prevent the carrying on of business during the period of infection, especially after promises such as were made by this dairyman, is scarcely just, unless compensation be allowed, which there is no power to give. To keep the place constantly under surveillance for eight or ten weeks, to make certain that such promises as those referred to are fulfilled, is beyond the power of any sanitary staff. Under these circumstances it is highly necessary in all cases where, as in the above, any trade or business is carried on at the great risk of communicating the infection of disease to the customers of that business, that the Sanitary Authority should have discretionary power to compel the removal of the patients to Hospital, or to stop the business and give compensation.

The house and bedding were disinfected.

One in the family of a dairyman and provision dealer, in Mill Lane, Bentinck, in March. In this household there occurred five cases of the disease (one fatal). The report made at the time was as follows:—

The shop opens directly into the kitchen in which was noticed one of the children whose skin was peeling from the disease. The other members of the family were in an adjoining room. The dairyman stated that he had discontinued having milk brought to the shop since the illness. There were milk and milk measures in the shop at the time of our visit; these were said to be used for the sick children. On our recommendation the father promised to close and paste up the door between the shop and house, also to take a room in which to keep uninfected clothing to wear whilst at business, and to stay away from the house whilst the shop was open. There is no guarantee that these promises will be fulfilled, but as no other course was open, short of stopping the business, for which the shopkeeper would not legally be granted compensation, it was thought best to act as above described. The drain is defective.

The house was disinfected.

One (consisting of two cases) at a common lodging-house in Back Row, in May. The cases were removed to the Fever Hospital, and the house and infected articles were disinfected.

One among several families at Bell's Court, Pilgrim Street, in August. The spread of contagion in this instance appears to have been due to inter-communication between the children of the different families affected. The rooms and bedding, etc., were disinfected.

One at a tenemented house in Seaham Street, in August. This outbreak consisted of 12 cases of Scarlet Fever, of which 6 died in a population of 19 persons occupying four tenements.

THE FOLLOWING TABLE SHOWS PARTICULARS OF THE CASES :—

Tenement.	No. of Deaths.	No. of Cases not Fatal.	Total Cases.	No. of Family before Occurrence of Scarlet Fever.	No. of Rooms in each Tenement.	Parts of House.
A	4	2	6	6	2	First floor front
B	...	4	4	5	1	Ground „ „
C	2	...	2	3	1	First floor back
D	...	...	...	5	1	Ground „ „

Tenement A consists of two small rooms—the larger containing 1,224 cubic feet (12 feet 10 inches by 11 feet by 8 feet 8 inches), and the smaller—a “well room”—779 cubic feet (12 feet 10 inches by 7 feet by 8 feet 8 inches). The tenement is in structure and capacity similar to that at No. 13, Pitt Street, in which two rapidly fatal cases of the same disease were reported last year. The general plan of the house is also like that of 13, Pitt Street. It consists of two tenements of a single small room each, on the ground floor, opening into a long dark passage. At right angles to this passage is a staircase 14 feet long, 2 feet 10 inches wide by 8 feet 8 inches high, without ventilation or light except at the foot. At the upper end the tenements on the first floor open upon it. It was recommended that the method of lighting and ventilation, as recommended for other similarly constructed tenement property, and, as indicated on the accompanying plan,* be applied to this house.

Disinfection was done, and the rooms were afterwards ventilated.

Other cases in connection with different defective sanitary arrangements of houses, &c. In reference to the spread of Scarlet Fever, the following entry was made in one of the fortnightly reports :—

It is much to be desired that in all cases of death from infectious sickness the custom should be introduced of inviting the friends of the deceased to meet at the cemetery and not at the house. The adoption of such a course would put a stop to one fruitful source of the spread of such disease.

* See Appendix, Plan of Houses in George Street, where the structure is similar.

ENTERIC FEVER.

An outbreak of five cases of illness—four of which were febrile, and the fifth was one of pneumonia—presumably due to sewer-gas poisoning in a household in Eslington Terrace, were reported on in January as follows:—

“The waste-pipe from the water-closet cistern discharges into the soil-pipe. By this means the cistern-water is exposed to dangerous contamination, and the illness of the family is thus explained. There are also the following sanitary defects on the premises:—A lavatory on the second floor discharges directly into the soil-pipe, and the soil-pipe ventilator terminates on a level with the upper bedroom windows. It is important that the cistern- and lavatory-wastes be without delay disconnected from the soil-pipe and that the ventilator be continued about four feet higher than at present.”

The waste-pipes were afterwards disconnected.

One of five cases in a family at Gibb's Yard, in Cut Bank, in March, in connection with a defective cowhouse and filthy premises. The house was disinfected.

One at No. —, Percy Street (a dairy), in April. The patient was under treatment in a room on the ground floor, adjoining, and opening directly into, the kitchen from which the milk was sold and in which the milk vessels were cleansed:—

“The cowhouse is within a few feet of the house, and is dilapidated and in an insanitary condition. The case was first visited on the 9th inst., when the mother of the patient, who acts as nurse and also takes part in the dairy business, was advised to remove the patient to an upper room, and to take other necessary precautions to prevent infection of the milk, and was at the same time informed of the consequence of neglect on her part. The case was visited on the 15th inst. by Inspector Hedley, who found that the precautions enjoined had not been taken; and who then repeated to the father of the patient (who is the keeper of the dairy) what had previously been said to the mother as to the prevention of infection of milk, and the penalty for neglect. A third visit was paid by the Inspector and Medical Officer of Health on the 16th, when it was found that no steps had been taken. During this visit milk was sold to customers from the kitchen, and the mother of the patient was milking in the cowhouse. The patient is now recovering, having been ill about three weeks.”

Proceedings under the Dairies' Order of July, 1879, were instituted against the dairyman, who was fined 20s. and 19s. costs.

One at No. —, Percy Place, in May, on which the following report was made:—

“At the back of the houses in Percy Place, near the walls of the cellar kitchens, is a drain, part of which is formed of brick. There are also

several large open privy-middens, the privies being about seven feet from the windows of the houses. The drains should be relaid with pipes, and a sufficient number of ash-closets should be substituted for the privies."

The drainage is reported as having been completed. The house was disinfected.

One at No. —, Byker Hill, in June, on which the following report was made :—

"There are no drains. The tenants of this house and others in the vicinity throw their slops into the channel. The water-pipe passes near a privy, and, in case of a defect in the pipe, might lead to contamination of water. There were two fatal cases of Enteric Fever in the adjoining house last year."

There being no sewer in the vicinity the matter was referred to the Town Surveyor, and the place was afterwards surveyed by the Sanitary Committee.

One at Fountain Cottages, Spital Tongues, in September, reported on as follows :—

"The tenants have no water-supply except that of the "fountain," which is open to pollution from cattle. Complaint is made of the nuisance from a large drain cesspot in front of one of the infected houses (No. 2). The discharges from the fever cases are either thrown upon the midden, and may thus infect the air, or are emptied into the cesspot which discharges through the sewer into the open stream. Water is not yet supplied to the house No. 6, Fountain Road, where Enteric Fever was reported several months ago."

In the same month, a later report on these and other cases of Enteric Fever, at Spital Tongues, was submitted as follows :—

"*Enteric Fever at Spital Tongues.*—Two cases of illness (probably Enteric Fever) came under notice on the 7th inst., in the family of Speedy, No. 45, Burnside Cottages, Spital Tongues; since that date no fresh cases have been reported. The extent of the outbreak, as known to the Health Department, is as follows :—

	Cases.	Deaths.
At No. 2, Fountain Road ...	2	0
" 3, " " " " ...	2	1
" 10, Dunn's Buildings ...	2	0
" 9, " " " " ...	1	1
" 45, Burnside Cottages ...	2	0
Total ...	9	2

"The cases have all been enquired into. With the exception of those at Fountain Road they had derived their water-supply from the pipes of the Water Company. (The Company's water is now laid on to the houses in Fountain Road, except Nos. 4 and 5.) The families affected obtain their milk from different dairies, all of which are reported to have been and to be free from Fever.

"Several of the byres at Spital Tongues are in an insanitary condition. That occupied by George Bowden, Hunter's Road, is badly drained and paved, and there is no water laid on to the interiors. The drain is obstructed. The paving and drainage of the adjoining byre is defective. The byre is low, and the yard was very dirty at the time of inspection.

"The block of cowhouses at Spital Tongues contains 13 open middens, each of which is about 12 feet by 7. The condition of these middens was reported to the Committee in March, 1879, and they have since been lined with wood. There are 13 unventilated privies adjacent to and discharging into them. Milk tins are kept in many of the byres. The deposit of cow manure on the open ground behind the wooden cowhouse occupied by ——— Hunter's Road, Spital Tongues (previously reported), continues.

One at No. —, Union Street, Shieldfield, in October:—

"Enteric Fever was prevalent in the same house in the year 1879. The family occupied a flat on the first floor of the house. There is an open privy-midden in the yard, not many feet distant from the windows of the living-room, and the excreta from the first case being thrown into this midden by contamination of the air inhaled by the occupants, may readily account for the extension of the disease."

The drain in the yard, which was also found to be defective, was remedied.

One of two cases at No. —, St. Thomas' Street, in November:—

"The kitchen and out-door sinks are untrapped. The former gives off sewer-air in sufficient current to extinguish a lighted match. Smells are complained of from the water-closet on the first floor, which is a 'pan closet,' opening directly on the landing, and is unventilated. The necessary proceedings are delayed until the termination of the cases. Disinfection is being attended to."

The drains have been re-laid, and the sinks have been disconnected.

One affecting several households in Conyer's Road, Byker, in November. Three of the cases were removed to the Fever Hospital, and several others remained under treatment at home. The following report on this outbreak was submitted:—

"The spread of the disease would appear to be due to the depositing of the infected excreta in open privy-middens, which are common in this part of the Borough. Privy-middens, under such circumstances, become a very serious source of danger to health. Another instance of the spread of the same disease, in all probability due to this cause, has lately come under notice at No. 24, Diana Street, where the midden is wet and offensive; and a third illustration is that of the family of ———, No. 30, Union Street, Shieldfield, where fever has lately been fatally prevalent, and where no other cause of the spread of the disease could be ascertained than that already named.

"It is generally admitted that the contagium of Enteric Fever is most abundant in the bowel discharges of the patients. When these excreta are thrown into open privy middens there is great danger to the health

of the surrounding population, and especially to those persons who use the privies. The emptying of the disinfected discharges down the yard-grates is generally advised where privies are in use; but there is no guarantee, and no great probability, that this will be attended to. The danger here illustrated is one great objection to privy middens, which, for this and other reasons, are rapidly being abolished from most of our large towns. The subject has been previously before the Committee. The Medical Officer respectfully repeats the request made in July, 1878, for instruction to prepare and submit a special report on the different modes of dealing with night-soil and house refuse."

The Medical Officer of Health was authorized to submit the report referred to, which is in course of preparation. The houses were disinfected.

MEASLES.

Outbreaks of Measles among the pupils of the large Elementary Schools were reported on in December, as follows :—

"Two outbreaks of Measles have come under notice in connection with large day schools, viz., one at Spital Tongues Board School, in which upwards of forty scholars have been affected, and in consequence of which the school was closed voluntarily by the authorities; and one at the Camden Street School, in which thirty-six scholars have been affected. All the cases have been investigated and precautions have been enjoined. The closing of the school at Camden Street was not attempted, nor was it advised, it being considered more important to keep the healthy at school and apart from the infected, than to allow the opportunity of their freely mingling together, as they would do were the school closed. Printed instructions as to the prevention of the spread of infection were supplied in each case, and the recommendation was given that the children affected should not be allowed to return to school until after the holidays. The amount of air space allowed for each scholar at the Camden Street School is as follows :—In the large class-room in which there are assembled from 150 to 180 pupils, the space ranges from 180 to 150 cubic feet per child. This room and the infants' class-room are not sufficiently lighted, being overshadowed by adjacent buildings. In the infants' class-room the space allowed is probably not beyond 100 cubic feet per child, and with a maximum attendance (sixty children) will fall to about 65 cubic feet. The class-room on the first floor (holding from fifty to sixty scholars) allows from 163 to 136 cubic feet each. The closeness of contact thus caused between the pupils, and especially in the infant class-room, undoubtedly helps to account for the spread of disease. It is important to note that under the Education Act no allowance is made for deficiency of a pupil's attendance, even when this is due to infectious sickness, *unless the cases of sickness have been so numerous as to necessitate the closing of the school.* As the principals of all Elementary Schools are directly interested in keeping up the number of attendances, it is evident that the arrangements are, in effect, such as to offer a premium to the concealment of infectious disease among the pupils, until an actual epidemic renders such concealment impossible. In the interests of public health and in justice to the principals of these schools, it is much to be desired that the

absence from school of any child suffering from infectious disease, or living in a family where such disease is present, should be insisted on and, so far as the Government Grant is concerned, allowed to count as regular attendance. It is recommended that on the occasion of next application to Parliament, power be sought to provide for these requirements."

The Committee requested the Town Clerk to forward a copy of the foregoing report to the Managers of the Camden Street School, which was done.

DIPHThERIA.

An outbreak of this disease at No. —, Eldon Street, was reported on as follows :—

"A death from Diphtheria occurred in this house in January. The scullery drain is old and defective, and passes beneath the kitchen floor, and the drain trap is loose. In the house adjoining, where there is at present a severe case of the same disease, there was found an offensive smell of sewer gas. The drain and trap appear to be in the same condition as the preceding. Each of these houses has a privy abutting on the house within a few feet of the pantry and near windows. There is no drain to either of the yards. The drains should be relaid, and should be made to discharge into the open air over trapped gully grates."

The drains were relaid with glazed earthenware pipes.

One at No. —, Holly Avenue, in April, reported on as follows :—

"There are seven cases of illness of a Diphtheritic nature. It was found that the cistern waste-pipe of the interior water-closet joined the soil-pipe, thus conveying sewer gas into the house. The end of the drain into which the soil-pipe discharges was imperfectly closed, and so placed as to convey sewer air below the boards of a sitting room, in which offensive smells were always noticed after the use of the closet. The soil-pipe ventilators were only $1\frac{1}{2}$ inch in width. The yard-drain had two inlets protected by bell-traps only. The flushing arrangement for the water-closet in the yard was defective."

The defects before mentioned are reported by the Inspector as having been remedied.

As it was felt that the mode of Disinfection by the officers of the Corporation and the disinfectants employed needed revising, the Medical Officer of Health, in December, submitted to the Sanitary Committee the following "Report on Disinfection":—

"With the sanction of the Committee, the Medical Officer of Health has to report on disinfection as follows :—The practice of mixing carbolic acid with sand or ashes, with the object of disinfecting the air of sick rooms, as at present carried out, is not calculated to be of much service in preventing the spread of disease, as the operation is done only once by the Inspectors in each case, which is insufficient. It is desirable that

recommendation No. 3 on the List of Instructions adopted by the Committee be acted on, and that half a pint of carbolic acid, diluted with water and properly labelled, be supplied with instructions for each case requiring it. At present no disinfectants are furnished by the Sanitary Authority for application to the dejecta and other discharges of the sick, which are thrown into privies or drains often without disinfection, and thus aid seriously the spread of disease. It is advised that in each case of Enteric Fever dealt with by the Inspectors, in addition to the disinfectants named above, a pound of green copperas be supplied for application to the discharges, and that strict injunction be given for its use as explained in clause 4 of the "Instructions." Whenever requisite the supply of disinfectants should be repeated. For the final disinfection of the rooms, instead of effecting this as is done at present, by sprinkling carbolic acid on a hot brick or live coals, it is desirable that sulphur be burnt in the amount of not less than half a pound to every 1,000 cubic feet of space to be disinfected. This part of the disinfection should as far as practicable be carried out strictly in accordance with clause 13 of the "Instructions." The beds, bedding, carpets, curtains, etc., etc., should *in every case* be removed to the disinfecting apparatus provided for the special purpose of treating such articles, which cannot be properly purified in any other manner. There is doubtless prejudice on the part of the heads of the families against the removal of their bedding, etc., for disinfection; but this in most cases will probably yield to reason and proper representation. As would appear from the return of last year, objections to this course are now met with much less frequently than formerly. Still, a large quantity of articles that can only be dealt with effectually out of the house are kept at home. The Inspectors should be instructed to use every effort to secure the removal to the disinfecting apparatus of all such articles. Where the gratuitous offers of the Corporation are refused, it is recommended that measures, under section 120 of the Public Health Act, 1875, be taken to compel disinfection in the manner indicated. Last year, in one such case, on threat of legal proceedings, the removal of the bedding was permitted. This is the only instance in which the course has been adopted."

The recommendations in the foregoing report were confirmed by the Committee.

With the object of directing attention to the means available for dealing with infectious diseases, the Sanitary Committee have advertised in the newspapers that copies of the "Instructions" to heads of families and others for preventing the spread of Fever, etc.,* were to be had on application to the Medical Officer of Health.

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

The following among other reports on house property in block have been submitted to the Sanitary Committee during the year :—

George Street West.—This street was surveyed by the Committee. The following report was made on February 11th :—

* Annual Report for 1879, page 32.

"During the seven years, 1873-9 inclusive, 42 deaths from Infectious disease in George Street have been recorded, viz.:—20 from Scarlet Fever, of which 6 were malignant, 5 from Enteric Fever, 3 from Measles, 2 from Erysipelas, 11 from Whooping Cough, and 1 from Diphtheria.

"During the same period 184 deaths in this street from other causes have been registered. Of these 26 are from Pulmonary Consumption, 22 from other Tuberculous and Wasting diseases, 14 from Convulsions, and 40 from Respiratory diseases.

"As the population of the street is not known, the usual death-rates cannot be given. They are, however, on a rough estimate, excessive. The deaths from Scarlet Fever, Consumption, Respiratory diseases, and Convulsions, which take up a very large proportion of the general mortality, indicate sanitary defects of which want of fresh air and light are among the chief.

"The well-rooms of the west side of George Street are worse than most others in the Borough, because they are also cellar kitchens, and are at the back overshadowed by the high houses on the opposite side of the back street, which is about 14 feet wide. The yards of these are also deeply sunk, and contain privy-middens about four feet from the windows. It is possible that, from special reasons, there may have been hitherto no mortality or even serious sickness among the occupants of certain of these kitchens, but it is generally found that whenever infectious disease does occur in such tenements as those under report, the cases take a severe form, as the foregoing figures show."

A further report made on the same is dated February 27th:—

"*George Street.*—As instructed by the Committee, the Medical Officer of Health, the Building Inspector, and the Inspector of Nuisances have again surveyed this street together. Since the date of last fortnightly report, further particulars respecting the street have also been obtained as follows:—The population of three blocks (Back George Street and the two sides of the front street) is at present 1,222 on an area of 4·65 acres, or at the rate of 263 persons per acre, the entire Borough being inhabited at the rate of 27·8 persons per acre.

"The following Table shows several particulars relating to the street, which are of great importance from a sanitary point of view:—

BLOCK.	No. of Houses referred to.	No. of Self-contained Houses.	NO. OF ROOMS IN EACH TENEMENT.				Population.	Area of Block excluding Street-way.	Population per Acre.
			1	2	3	More			
Back George Street ...	36	5	24	23	7	1	218	Acre. 0·93	234
George Street, West Side	47	14	23	116	11	13	679	1·2	565
George Street, East Side	30	7	25	44	7	6	325	0·78	416
Total	113	26	72	183	25	20	1,222	2·91	...

"The well-rooms of George Street are as follows :—

BLOCK.	IN CELLAR KITCHENS.			On Ground or First Floor.	On Second Floor.	Not Stated, &c.	Total.
	Front.	Back.	Total.				
Back George Street ...	..	...	...	9	4	4	17
George Street, West Side	24	16	40	1	47	1	89
George Street, East Side	11	9	20	2	19	1	42
Total ...	35	25	60	12	70	6	148

MORTALITY OF GEORGE STREET.

"During the seven years, 1873-9, the rates of mortality from diseases or sets of diseases directly attributable to ground-crowding and defective ventilation and lighting of dwellings is compared with the corresponding rates in the Borough in the following Table :—

DEATH RATE PER 1,000 POPULATION.							
GEORGE STREET.*—(Mean of Seven Years, 1873-9).						BOROUGH, 1879.	
Pulmonary Consumption	...	...	...	...	3.4	2.3
Respiratory Diseases	...	...	...	...	4.7	4.0
Convulsions	...	...	...	...	1.6	1.2
Tabes Mesenterica, Debility, &c.	...	...	...	...	3.3	1.9
Scarlet Fever	...	...	...	...	2.3	1.7
Whooping Cough	...	...	...	...	1.3	0.5
Enteric Fever	...	...	...	...	0.6	0.3
Total rate of Three Infectious Diseases						4.2	2.5

* Calculated on population in George Street, enumerated February, 1880.

"It is thus apparent that the health of George Street, as regards diseases indicating sanitary defect, is considerably below that of the Borough, and that the mortality from infectious diseases is excessive. Such areas as this form hot-beds and foci of disease, from which charwomen, washerwomen, errand boys, school children, etc., convey infection over the town.

"From the second Table it will be seen that the *well-room*, which is perhaps the worst possible form of room as regards ventilation, owing to its structure, constitutes in George Street an evil of considerable magnitude, there being no less than 148 such rooms, of which 60 are in cellars, all being used as *bedrooms*.

"All the well-rooms are small. The measurement of one, which is also a cellar bedroom, taken at random, on the east side of the front street, is only 7 feet 2 inches high by 7 feet 3 inches by 11 feet 10 inches or of a

capacity of 620 cubic feet. Many of these cellar well-rooms, as previously stated, are very dark, particularly at the back of the west side of George Street.

"To remedy the defects described the back cellar-bedrooms of the area under report should all be dealt with according to a common principle, since to allow an exception will be to raise difficulties with the owners of other tenements. The well-rooms in the tenements not under ground, being all of one form, should also be all treated alike. Other alterations than those for ventilation are necessary for the sanitary improvement of the group. It is desirable that each and every change proposed should be consistent with a general scheme for the permanent improvement of the area; it should also be complete and thorough, once for all, otherwise it will soon be to do over again, unless George Street is to continue a constant source of trouble to the Sanitary Authority, ill health to its own inhabitants, and danger to the town. Such a general scheme has been agreed upon by the officers to whom the Sanitary Committee have entrusted this responsible duty, and will be submitted. In addition to the improvement in individual tenements, the scheme proposed is calculated to benefit the area as a whole by the reduction of the ground-crowding, which will follow the conversion of the different pairs of small cellar dwellings (one back and one front, of two rooms each, in each house) into as many single three-room tenements."*

A comprehensive scheme, as indicated above, for the sanitary improvement of George Street, was submitted to the Sanitary Committee and was approved, and the owners of the property were recommended to carry it into execution. In a few cases the alterations proposed were made. Several of the owners declining to do the work, instruction was sought with respect to them. The Committee being advised that they could not compel the carrying out of the desired alterations, adopted a modified scheme, which they requested the remaining owners of property to carry out. This recommendation also was acted on in some instances. There is still a large number of houses in which nothing has been done, against the owners of which proceedings are about to be taken before the magistrates.

St. Peter's.—The following report was made in May :—

"The attention of the Committee is directed to the condition of St. Peter's. It is desirable that some more rapid system of refuse removal should be adopted for this large block of tenement streets. At present privies and open middens are in general use. Owing to the confined nature of the yards, the closeness of the "conveniences" to the dwellings, and the defective condition of most of them, coupled with the outlying situation of St. Peter's and attendant difficulty and delay of refuse removal, the midden system is here particularly open to objection. The group appears fairly suited to the adoption of ash-closets, which have before been recommended. In most other respects the sanitary condi-

* Plans prepared by the Building Inspector, Mr. Liddle, of the dwellings of George Street, together with the remedies recommended, are given in Appendix No. IIIA. to this Report.

tion of St. Peter's continues to be much the same as when surveyed by the Committee, except that some of the property is more dilapidated. One house, worse than the rest, may be particularized. No. 24, Chapel Street, which was closed about a year ago as unfit for habitation, is being allowed to go to ruin. The door has been left open, and the premises were, on a recent visit, found to be in a disgusting condition from deposited night-soil and refuse. The privy, which is the only one to which the tenant next door has access, is very dilapidated and unfit for use."

On this report the Sanitary Committee ordered that ash-closets be substituted for privies and ashpits. The Inspector of Nuisances reports that "the work is in progress as ordered by the Committee."

Spital Tongues.—The sanitary condition of Spital Tongues formed the subject of two reports, and was on several occasions visited by Sub-Committees. The matters claiming attention were—defects of private and tenement houses, water-supply, sewerage, street paving (Back Morpeth Street), insanitary stables and cowhouses, offensive cow-dung middens, a cesspool, privy middens about 7 feet from house windows, house drainage, and leaking rainspouts. For remedy, a Council order for paving and drainage was ordered to be obtained; a scheme of sewerage was decided on and will be shortly carried out; the Company's water was laid on to the premises reported on; the privy middens were replaced by ash-closets.

Brandling Village.—Reported on in August as follows:—

"The mode of refuse removal at Brandling Village requires attention. Most of the house drains are constructed of brick, and many of them are defectively trapped. Open privy-middens are in common use; at No. 31, the midden abuts on the wall of the pantry. Several of the yards are very small, and some are badly paved. At No. 38 the yard has been covered over, and contains an ash-closet and a drain under the same roof as the dwelling, which opens directly into it. It is desirable that all the brick drains should be laid with glazed pipes, that the privies should be converted into ash-closets, and that the yards should be cemented."

Mill Lane, Byker Hill.—The following report was made in October:—

"The houses are without drains, there being no sewer. Liquid refuse flows in open channels. A block of three houses in a field in the lane are damp, dilapidated, and unfit for human habitation. They have no water supply. The privy is very defective and offensive. The sewage flows into a field, there being no drain. These houses should be closed."

Notices were served to close the cottages. The property is to be pulled down.

Lawson Main, Byker.—Reported on in October:—

"This block of 10 cottages is, with one exception, damp, dilapidated, and unfit for habitation. There is no drain or sewer. A large and

offensive pool of sewage stands near the doors of the houses. Ashes and refuse are deposited on the ground. With two exceptions, the houses are without any privy accommodation. The water is derived from a well at a distance of about 100 yards. Pigs are housed in too close proximity to the cottages."

The cottages are to be pulled down.

Ouseburn Police Station.—The sanitary condition of this block was examined and reported on in February at the request of the Chief-Constable. Subsequent action in respect of the provision of accommodation for the Police of this division of the Borough is recorded in the Council proceedings.

(3.)—SANITARY DEFECTS OF OTHER PROPERTY.

Numerous defects of single houses (self-contained or tenement) have, as usual, been brought under notice. The two following may be cited as illustrations of insanitary conditions met with in houses of high rental, and usually regarded as superior dwellings. No. —, Windsor Terrace, was reported on in March as follows:—

"The following instances of serious sanitary defect in an otherwise good-class house of modern construction came under observation in consequence of the complaint of the occupant, who had been obliged to leave it temporarily, on account of very offensive smells of sewer gas, from basement to bedrooms on the third story. The water-closet is situated on the ground-floor in the interior at the back of the house. The soil-pipe, which is unventilated, passes down inside the main wall of the house to the drain, which traverses the basement from back to front. The drain is obstructed and leaking, and appears to have been so before, as the wall near it is marked by damp. The main back wall through which a branch to this drain passes is hollow, and its interior communicates with all the bedrooms by grated openings intended to serve as outlets for foul air from these rooms, but which at present act as direct inlets for sewer gas. The bath and lavatory wastes join the drain directly without disconnection. The drain passes to the sewer in the front street (although there is a sewer at the back) and near the front wall receives the waste from the kitchen sink, which is not disconnected. A death from Typhoid Fever in this house some years ago is reported. The owner agreed to examine and repair drain; to carry the soil-pipe through the main wall to the open air, and to ventilate it properly; to disconnect the bath, lavatory, and sink. It is to be regretted that the drain was allowed to pass under the house. The owner did not fulfil his promise until threatened with legal proceedings."

The Inspector of Nuisances reports that all the discharge pipes were afterwards disconnected, and the soil-pipe carried outside the building.

No. —, *Eldon Square*, reported on in June as follows:—

"Complained of on account of its insanitary state, the occupant alleging that several members of his household have been ill in conse-

quence. The bath, lavatory, and an offensive interior water-closet, together with the 'save-all trays,' appear to discharge into the same pipe, which is not properly ventilated. The soil-pipe passes beneath the work-room and has there an untrapped opening in the floor. A water-closet at the back door of the house is complained of as giving off very offensive smells. The cellar kitchens are both damp, apparently from a defective drain beneath the floors, which is stated to be formed of rubble. Water is also standing in the small front area. For remedy the bath, lavatory, wastes, and save-all trays should be disconnected from the soil-pipe, which should be ventilated by a full bore continuation to above the eaves. The communication between the soil pipe and the work-room should be cut off. The offensive smells from the two closets (which are of the form known as 'pan-closets') may be remedied by ventilating the 'trunk' of each closet by a short double pipe leading to the open air. The drain reported to be beneath the kitchen is not needed, and should be done away with, as the house drainage may and should discharge into the sewer at the back. The wet in the front area should be taken to the sewer in the Square. As the case is urgent it is desirable that the alterations indicated be made without delay."

The discharge pipe was disconnected from the drain.

Blackett Street.—Millinery shop, workshops, etc.:—

"In consequence of information from the Inspector of Factories, the Medical Officer of Health, in June, visited certain premises in *Blackett Street*, and found an untrapped lavatory and a defectively ventilated "pan" water-closet in the interior under the stairs. There was also an obstructed drain in the yard which overflowed at each flushing of the yard-closet. The closets were not ventilated properly. The cellar kitchen stairs were very damp, as was one of the kitchens. The cellar drains were defective, and smells from them were complained of."

The Inspector of Nuisances reports that notices to cleanse out the drain, disconnect the lavatory, and ventilate the soil-pipe, were complied with. The drain was also relaid with glazed earthenware pipes.

The following are illustrations of defects in tenement property, reported on during the year :—

No. —, Blenheim Street.—"Two cellar kitchens occupied as living and sleeping rooms; both are very dark; the bedroom is a small 'well-room.' A privy, the midden of which is exceedingly foul, is placed at a distance of about two yards from the window of the day room. The staircase on the ground floor is only 2 feet 9 inches wide, and very dark. The bedrooms on the first floor are 'well-rooms.'"

The Inspector reports that the sleeping rooms and staircase have been ventilated, and that a water-closet has been provided in place of the privy.

At No. —, Blenheim Street.—"Is a cellar kitchen used as a bedroom, and containing a defective sink in direct communication with the sewer."

The Inspector reports that the sink has been removed.

No. —, Cambridge Street.—"The kitchen sink in direct communication with the sewer, and sewer air blowing freely up into the house. Also a leaking cistern near the scullery. The soil-pipe of the water-closet unventilated, and the bath and lavatory wastes not disconnected."

The Inspector reports that notices were served to have these defects remedied. The only result recorded is that the discharge pipes have been disconnected.

No. —, Peel Street.—"Beneath a living room were found two filthy water-closets, the pans of which were full of night-soil. The drain at the back was defective. The premises were in a very insanitary state."

The Inspector reports that the closets were "properly cleansed," and that the drain has been relaid with sanitary pipes.

Haddock's Court, Newgate Street.—"Rooms on the ground floor damp and unfit for habitation; reported in 1879, and still occupied as dwellings in 1880, the walls having been boarded up to conceal the damp."

The defects are reported by the Inspector as having been remedied.

Janet Street, St. Peter's,—was reported on in May as follows:—

"The rooms of the tenements in this street are all very small. The tenements on the first floors have windowed rooms measuring 5 feet 3 inches by 3 feet 9 inches, or a cubic space of $175\frac{1}{2}$ feet. These closets are likely to be used as bedrooms for children, and are made too small for such a purpose."

Wooden Sheds erected without authority.—This, which is becoming a somewhat prevalent custom in certain localities, was brought before the notice of the Committee in May. The matter claims attention for various reasons, among which are (1) the interference with ventilation and encroachments on required yard space; (2) insanitary uses to which sheds, etc., so constructed are frequently put; (3) danger to neighbourhood in case of fire.

Recommendations to Builders, Owners and Occupiers of Houses.—A list of recommendations on the disconnection and ventilation of house drains, etc., drawn up by the Medical Officer of Health, after the Model Bye-laws of the Local Government Board, together with a sketch plan, prepared by the Borough Engineer, was referred to a Sub-Committee, but was not approved.

(4.)—REFUSE REMOVAL.

Slaughter-houses in different localities have been reported as being in an insanitary condition from structural defects, accumulation of refuse, etc. The slaughter-house regulations are imperfect, and do not appear to be enforced with sufficient strictness.

Deposit of Slops and offensive Matters on Streets, &c.—This practice is prevalent in various parts of the town, chiefly in the neighbourhood of tenement property, and has been reported on different occasions. It arises in many cases from the unwillingness of the tenant to be at the trouble to use the sink in the yard; in others from want of such a sink within a convenient distance; in all it is exceedingly offensive. The attention of the police has been directed to the matter.

Deposit of Road Scrapings and other decomposable matter were being made in May on vacant ground at St. Lawrence, which will afterwards be built on. The Superintendent of Cleansing also made his report on this subject. The discontinuance of the deposit was ordered by the Sanitary Committee.

(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 nine 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. A deputation from the Board of Guardians waited on the Sanitary Committee on July 28th, with the object of showing that it was the legal duty of the Corporation, under section 142 of the Public Health Act, 1875, to remove to the dead-house all corpses where doubt exists as to whether they are cases of destitution or otherwise. The Committee considered it desirable that the duty should be undertaken by the Relieving Officers and offered to defray the expenses incurred.

The Board of Guardians were not, however, prepared to instruct their officers to act in the manner proposed. The matter therefore stands as described in the Annual Report for 1879, which may be briefly expressed as follows:—There being no legal power to enable Relieving Officers to recover expenses incurred in the burial of the non-pauper dead, except in certain cases for special sanitary reasons provided for in the Public Health Act 1875, all cases where there is doubt as to destitution are, for the purpose of the Poor Law Authority, but at the expense of the Corporation, dealt with as though they were excepted for the special sanitary reasons referred to.

The difficulties involved in this matter would be obviated were there legal power enabling the Relieving Officers to recover expenses so incurred from any person legally liable to pay them.

(6.)—DAIRIES AND COWSHEDS.

The Regulations under the "Dairies, Cowsheds, and Milkshops Order of July, 1879," made by the Corporation as the Local Authority under the Order, are given on page 57 (Appendix No. II. A.)

As stated in last Annual Report, the Sanitary Authority resolved to issue a list of instructions for the general guidance of the Inspector under the Order, as their definition of the words "reasonable satisfaction" in the Order. These instructions, as prepared by the Medical Officer of Health, were adopted in October. A copy is given on page 58 (Appendix No. II. B.)

The Inspector under the Dairies Order, reports that eleven persons have made application to begin to occupy as cowsheds buildings which had not previously been occupied as such, ten being old buildings and one erected for the purpose proposed. After the cases had been severally reported on by the Medical Officer of Health and the Inspector, the Local Authority granted five of the applications and refused six; the latter chiefly on account of confined situation and defective drainage and ventilation. Six defective cowsheds have been closed or pulled down on account of action taken; six have been improved in lighting, ventilation, and drainage, and have been cemented behind the stall-ground after notice given. In six others, reported to the Authority as being defective, proceedings have been ordered to be taken against the occupiers. Two persons have been convicted before the Magistrates. One was fined twenty shillings and costs for using his place of business "in a manner likely to cause contamination of the milk therein," a person suffering from Enteric Fever being kept in a room in direct communication with the milk-store, and the same persons attending to the business and waiting on the patient (see page 13). The other was fined ten shillings and costs for beginning to occupy as a Cowshed, a building which had not been previously occupied as such, and without giving notice to the Local Authority of his intention so to do.

For the information of persons proposing to erect new cowhouses, the Medical Officer of Health has, with the aid of the Building Inspector, prepared a plan of a model cowhouse, in accordance with the "Instructions to the Inspector" under the Dairies Order (see Appendix No. II. c.)

(7.)—PAVING, DRAINAGE, ETC.

From information kindly supplied by the Borough Surveyor, it appears that ten front and eleven back streets were flagged, paved, and sewered

during the year under review. In addition to these, six front and five back streets begun in 1879 were completed in 1880, and eight front and five back streets begun in 1880 were in progress at the end of the year.

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

(a).—*Nuisance Removal*.—The number of cases of nuisance dealt with, by legal notice or otherwise, during the year is in excess of the previous year. A total of 4,271 cases for the year is reported, as against 4,042 in 1879. This increase is limited to the parishes or townships of Elswick, Westgate, St. Nicholas', Jesmond, and Byker, there being a falling off of cases in St. Andrew's, St. John's, and All Saints'. The sanitary defects chiefly forming the increase of the cases under observation are those of drainage and closet accommodation. Under the former head, a total of 1,232 cases in the Borough is recorded against 849 in the previous year; under the latter head 681 cases against 568 in the previous year.

Sixty-one notices for non-consumption of smoke have been served against twelve in the year before. A detailed statement of the nuisance cases is given in Appendix I., Table XVII.

(b).—*Disinfection*.—446 cases* of infectious disease of different kinds have been disinfected by the inspectors during the year, or less than half the number dealt with in 1879. The returns for the year 1880 bear a relation to the deaths from the same diseases somewhat similar to the corresponding returns for the previous year, about 42 per cent. of the cases dealt with having been those of fatal cases, whereas in 1879 the proportion was 45 per cent. The sources of information in both years having been practically the same, viz., the Death Register and the returns of Dispensary practice, the inference may perhaps be allowed that in 1880 the actual amount of general sickness in the Borough from the diseases in question has been about one-half of that in 1879. It is extremely satisfactory to observe the increasing part played by the disinfecting apparatus in this important section of sanitary work. Although the infectious disease has been much less than in the year before,† the number of articles removed to the stove by the inspectors has been much greater, showing that, as was stated in a former Report, prejudice against removal of articles for disinfection is gradually being overcome.

* For detailed list see Appendix I., Table XVI.

† For detailed list see Appendix I., Table XV.

(9.)—UNWHOLESOME PROVISIONS.

The work of this section does not call for lengthened comment. The amount of provisions found unfit for consumption is in excess of that of the previous year. All the articles consisted of animal produce. A list is given in Appendix I., Table XIV.

(10.)—BUILDING PLANS EXAMINED.

The examination of plans for proposed buildings, and the initialing of those that are approved, is now one of the regular duties of the Medical Officer of Health, and is performed in concert with the Town Surveyor and the Building Inspector. By the instruction of the Town Improvement Committee, on a recommendation of the Medical Officer of Health, a report on the building operations of the year has been made by the Town Surveyor. This document gives much useful information regarding vendors' and building plans submitted and approved or rejected; the number and description of the buildings for which plans were approved, and those erected in the different parishes or townships; the area in each parish, etc., of ground not previously occupied by buildings covered during the year; the length and frontage of such buildings; detailed list of notices issued relative to infringement of building regulations, dangerous structures, etc.; list of liberties granted by the Committee; and concludes with some important general observations on the building operations of the year. The report shews that house accommodation for 230 families (86 in self-contained houses and 144 in flats) has been provided during the year. All the flats are in themselves self-contained, each having a separate door, and, for the most part, a separate yard. No house intended for habitation by more than one family entering by the same door has been erected. Building operations have been most extensive in Byker and Jesmond as regards area, and in Byker, Elswick, and Westgate as regards length of frontage.

Without giving statistics, it may briefly be stated that of the plans submitted a somewhat large proportion were for various sanitary reasons not initialed by the Medical Officer of Health. The objections noted were, as might be expected, most numerous in the case of proposed new dwellings; next in proposed alterations of existing habitations; next in proposed alterations of business premises, etc., etc. The chief defects in plans submitted for new dwellings were (1st) small bedrooms; (2nd) waste-pipes not disconnected; (3rd) deficient yard space; (4th) water-closets in improper position, *e.g.* between two bedrooms or in a bathroom;

(5th) water-closets or their waste-pipes not properly ventilated; (6th) sleeping or living rooms (principally the former) imperfectly ventilated; (7th) interference with ventilation of adjoining buildings; (8th) defective privies and ashpits; (9th) faulty drainage; (10th) rooms imperfectly lighted; (11th) low ceilings, etc., etc.

The observations of the Town Surveyor in the report referred to, on deficiency of area of bedrooms, are important. It is much to be desired that there should be some amendment of the bye-law on this point. At present the regulation in force requires a floor space of 108 square feet to be provided *for one habitable room only on each floor*, a provision almost superfluous, since few houses are likely to be constructed in this country on a smaller scale. An error so palpable as this would almost appear to have been accidental. The bye-law would be well amended by one requiring that *no* habitable room should be of less area than that mentioned above.

The Medical Officer of Health supports the observations in the report as to the laying of house drains. He repeats the remark made in a former Annual Report that these drains would be laid more efficiently and in a manner more likely to subserve sanitary purposes, if the work were done by the Corporation and charged to the owners.

(C.)—OBSERVATIONS.

(a) *Absence of Typhus*.—Under the head of "Advice Tendered" (page 9), reference is made to the fact that no case of Typhus has been admitted to the Fever Hospital during the year. In last annual report (page 49), it was shown that for the nine years immediately before the transfer of the Fever Hospital to the Corporation in 1873 the average yearly admissions from this disease was 231; that subsequently there had been a reduction of no less than 87 per cent. on this amount; now, for the first time, a year has passed without the admission of a single case. A more striking proof than this of the power of a Sanitary Authority over disease, is difficult to imagine.

To prevent the supposition that the paucity of Typhus patients in hospital is in any way due to remissness on the part of the Health Department, it may be stated that two cases only of the disease have been notified during the year. One of these was found on investigation not to be Typhus. The other being merely a suspected case of that disease, was not removed.

The writer has no hesitation in again recording his firm and oft-expressed conviction, that with like notification of cases and compulsory isolation of the infected, the success which has followed the efforts of the Sanitary Authority against Typhus would be fully equalled in the case of Small-pox, Scarlet Fever, Measles, and other communicable diseases.

(b) *Admission of Scarlet Fever to Hospital.*—The Hospital, from its structural arrangement, would appear to have been, from the first, solely intended for the treatment of "Fever," which, at the time of the foundation of the institution in 1802 was not, as now, recognized as including the two entirely distinct forms—Enteric and Typhus Fever. Hence the building was constructed with a common stair communicating by corridors with every one of the wards, an arrangement totally unsuited for the treatment of different infectious diseases at the same time. The result has been that when, under pressure of circumstances, patients have been admitted to the Hospital with other diseases, they have sometimes, notwithstanding precautions, contracted Typhus before their discharge. Typhus has always given rise to the greatest number of admissions to the Hospital. Few cases of Scarlet Fever, on the other hand, have been received, even during epidemics of that disease. Even were there proper and separate accommodation, at the same time, for the different diseases—Typhus, Enteric Fever, Scarlet Fever, Small-pox, and Measles—there will always be greater difficulty in securing the removal of cases of the two latter ailments, by reason of the youth of the sufferers and the consequent unwillingness of their parents to allow their removal from home.

(c) The *Statistical Returns* on the sanitary condition of Newcastle during the past year may be regarded as, on the whole, satisfactory. Compared with former years the general and zymotic death-rates of 1880 are low. These rates, as given in the preceding portions of this report, having been calculated on an estimate of population which the recent Census has shown to be erroneous, are not perfectly accurate. They have been retained for various reasons—among others, because the system on which they are computed is that adopted by the Registrar General in his reports, where the mortality of the different large towns of the United Kingdom is compared on a common basis with which it is not at present desirable to interfere. In passing it may be remarked that there is a slight difference in the rate of the mortality of the Borough from all causes as given by the Registrar General and as stated in the present report, arising from the circumstance that in the former case the rate (22·0 per 1,000) refers to a period of 52 weeks, whereas in the latter it (22·7) covers 53 weeks.

Assuming the population of the Borough during 1880 to have been the same as enumerated at the recent Census, the rate of death per 1,000 from all causes would be actually 23·0 instead of 22·7 for the 53 weeks ended 1st January, 1881. The error, therefore, from over-estimate of population is not very great as regards the entire Borough. It is, however, considerable in the individual Sub-districts, as the following shows:—

BOROUGH OF NEWCASTLE-UPON-TYNE.							
REGISTRATION SUB-DISTRICTS.				POPULATIONS.		DIFFERENCE.	
				Estimated to Midsummer, 1880.	Estimated April, 1881.†	Decrease.	Increase.
Westgate* ...	...	...	...	69,091	61,464	7,627	...
St. Andrew's ...	...	...	...	20,221	18,708	1,513	...
St. Nicholas' ...	...	...	...	9,657	9,435	222	...
All Saints' ...	...	...	...	29,046	24,425	4,621	...
Byker ...	...	...	...	21,351	30,708	...	9,357
Total ...	...	...	...	149,366	144,740	4,626	...

† From information kindly supplied by the Superintendent Registrar, Mr. C. E. Hunter.

* Not including Benwell and Fenham.

It thus appears that, exclusive of the Registration Sub-district of Byker, there has been a decrease of no less than 13,983 persons in the Borough below the number estimated for the previous year, and that in Byker the population, as enumerated, is 9,357 above the estimate for the previous year. The death-rates of these Sub-districts as estimated, therefore, are erroneous in like degree. Thus, assuming again that the population of the Borough was, in 1880, the same as enumerated in 1881, the following is the corrected Table of death-rates from all causes per 1,000 of population:—

REGISTRATION SUB-DISTRICTS.				CALCULATED ON POPULATION.		DIFFERENCE.	
				Estimated, 1880.	Enumerated, 1881.	Increase.	Decrease.
Westgate* ...	...	...	...	20·0	22·5	2·5	...
St. Andrew's ...	...	...	...	18·8	20·4	1·6	...
St. Nicholas' ...	...	...	...	36·7	37·7	1·0	...
All Saints' ...	...	...	...	21·7	25·1	3·4	...
Byker ...	...	...	...	27·5	15·9	...	11·6

* Excluding Benwell and Fenham.

With respect to the Sub-district of Byker, it has long been believed that there was an under-estimate of population, and that consequently the rates of mortality calculated on it were overstated.

Errors of estimate of population are almost inevitable towards the close of a decenniad, and this is a most powerful argument in favour of a more frequent Census.

Notwithstanding the inaccuracies before referred to, there is, as has just been shown, very much in the health returns of the past year on which the people of Newcastle and their Sanitary Authority may congratulate themselves. There has been an actual and large decrease in the mortality from two zymotic diseases which usually form a striking feature in the returns, viz., Scarlet Fever and Measles. The mortality from diseases not zymotic but liable to fluctuation—those of the respiratory organs—is also considerably below that of the previous year. But the sanitary condition of Newcastle, as evidenced by its mortality, is still below what may be reasonably considered an attainable standard. There are many causes of sickness and death at work among us which may be and ought to be removed. Perhaps the most deadly of all, though, under proper measures, the most manageable of any, is infection—a power for ill in the majority of cases beyond the control of the Sanitary Authority because hidden from them. Small-pox or Fever may spread from house to house among the middle and upper classes, and, until the registration of a death, no intimation whatever of the outbreak may reach the Health Department. When the disease breaks out in a household, those most endangered (to wit, the healthy members of that household) instead of giving information to the authorities such as might lead to the discovery of its cause in defective structural sanitary arrangements, a polluted water, an infected milk supply, or the like, conceal the fact, as though the family affliction were some punishable offence; and the medical adviser, apparently with the same idea, declines to report it unless compelled to do so. There is something wrong in a condition of things such as this. The fault lies probably in the idea that reporting the circumstances will subject the infected household to annoyance or inconvenience. But this is a mistake. The only aim of the Sanitary Authority and its officers is to remove the cause of disease, and in the performance of this kindly duty the public may rest assured that due consideration and sympathy will always be shown for individual affliction. It must be admitted to be in the interest of all concerned to further such an object; and yet in getting the required information the greatest difficulty exists everywhere, except in certain

towns where it has been overcome by legal enactment. Among these towns may be named Huddersfield, Bolton, Jarrow, Burton-on-Trent, Blackburn, Norwich, Edinburgh, Warrington, Nottingham, Derby, and several others. Quite recently Manchester, by the exceptional grant of a provisional order by the Local Government Board, has acquired similar powers. Following these examples, and by the authority of the Sanitary Committee, the Medical Officer of Health has prepared a set of clauses relative to this and other important sanitary questions for the Bill in course of preparation for Parliament.

There can be no doubt that such sanitary powers as are proposed to be acquired in the Bill will be a lever for good in the hands of the Corporation.

The success of sanitary measures against Typhus Fever, formerly most potent, widespread, and perennial in Newcastle, has frequently been recorded in the pages of these reports, and never has that success been more signal than during the past year; but Typhus, as was shown in the report for 1879, is an affection for the most part limited to the medical practice of the Dispensary and Poor-Law Authority, and both of these institutions furnish returns of their infectious cases.

If the registration of all infectious disease in Newcastle become compulsory, in the single disease of Scarlet Fever alone—for which it is expected that special provision will be made in the New Sanitary Hospital—a large reduction in the infantile, and a proportional decrease in the general, mortality may be anticipated as one of the results. Nor need the improvements be limited to this. If suitable accommodation be provided and made use of, other zymotic diseases may be effectively and effectually dealt with in like manner, until the hopes of the ardent sanitary reformer, too often alas! regarded as visionary and impracticable, are an accomplished fact.

As a standard for comparison, an incentive to sanitary progress, and a proof of what pitch of excellency the general health of a community, chiefly urban, is capable of attaining, the following vital statistics of the Society of Friends* in the United Kingdom (estimated a population of 17,000) are placed in juxtaposition with corresponding returns for our own Borough :—

* Calculated on information courteously supplied by H. Clapham, Esq.

				SOCIETY OF FRIENDS.		NEWCASTLE-UPON-TYNE.	
				A.D. 1879-80.		A.D. 1880.	
General Death-rate per 1,000—							
At all ages	...	...	...	17.3	...	...	22.3
Of children under 5 years of age	...			1.7	...	...	10.3
" " " 1 year of age	...			0.7	...	...	6.2
Percentage of deaths over 60 years				64.5	...	...	18.3
of age to total	...	...			

(d) *The Public Parks and Recreation Grounds.*—One of the most important sanitary acquisitions of Newcastle, and one on which she may justly pride herself, is the large amount of land her public have right of access to for recreation and amusement. The Registrar General, in his Fortieth Annual Report (page 215), shows in a table the amount of park space provided by the different large towns of Great Britain and Ireland; but as the particulars therein given respecting this Borough refer only to the public grounds ornamentally laid out, and do not take into account the Town Moor and the Leazes, the Registrar General was apprized of this, and courteously acknowledged the information.

The area of the Town Moor, Leazes, and the different ornamental public parks of the Borough is as follows: *—

	A.	R.	P.
Town Moor	1,059	0	0
Leazes (exclusive of land laid out ornamentally) ...	106	0	0
Leazes Park	31	0	33
Armstrong Park	52	2	17
Elswick Park	14	2	0
Brandling Park	4	2	30
Total	1,268	0	0

There is in the above an area of one acre of open exercise ground to every 4.2 acres and to every 114 persons in the Borough. Assuming the remaining information in the table from the Report of the Registrar General to be correct, Newcastle-upon-Tyne stands *first* of the large towns of the United Kingdom in regard of amount of public exercise ground provided, both in proportion to area of the Borough and to population. The advantage of these places of recreation and enjoyment to the health of the inhabitants is incalculable. The Moor, from its size (one-fifth of the entire Borough), its healthy situation, the wide and fine

* The different Public Recreation Grounds, &c., are indicated in pale green tint on the accompanying plan of the Borough.

prospect it commands, and its proximity to the town, is an exercising ground freely open to all classes of the people, on foot or on horseback, as well as for sports and games of different kinds, probably unequalled. The Leazes, though less in extent, is in other respects not inferior, and is much frequented. The more recently acquired parks of the Borough, now 103 acres in extent, form pleasure grounds of great natural and artificial beauty, for which the people are indebted to a happy combination of private munificence, public spirit, and æsthetic taste.

HENRY E. ARMSTRONG, M.R.C.S.,

MEDICAL OFFICER OF HEALTH.

BOROUGH OF NEWCASTLE-UPON-TYNE, 1880.

APPENDIX No. I.

TABLE I.

POPULATION (ESTIMATED BY THE REGISTRAR GENERAL TO THE MIDDLE OF
THE YEAR)—149,366.

Registration Sub-Districts.	Births Registered in 53 Weeks, ended 1st January, 1881.					Deaths Registered in 53 Weeks, ended 1st Jan., 1881.		
	Male.		Female.		Total.	Male.	Female.	Total.
	Legiti- mate.	Illegi- timate.	Legiti- mate.	Illegi- timate.				
Westgate	1,110	78	1,095	55	2,338	703	678	1,381
St. Andrew's	270	15	306	16	607	192	189	381
St. Nicholas'	127	11	145	9	292	216	139	355
All Saints'	478	29	438	29	974	316	315	631
Byker	609	24	568	23	1,224	317	270	587
Borough Total	2,594	157	2,552	132	5,435	1,744	1,591	3,335

TABLE II.

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

	1876.		1877.		1878.		1879.		1880.	
	Annual Average in 23 Towns.	Annual Rate in New- castle.	Annual Average in 23 Towns.	Annual Rate in New- castle.	Annual Average in 23 Towns.	Annual Rate in New- castle.	Annual Average in 23 Towns.	Annual Rate in New- castle.	Annual Average in 23 Towns.	Annual Rate in New- castle.
1st Quarter	26·8	25·5	24·7	24·2	25·5	23·2	27·8	25·3	25·5	23·1
2nd "	23·0	21·8	23·9	23·2	23·2	22·0	22·7	25·3	20·4	21·8
3rd "	22·7	22·6	20·5	20·2	23·5	25·4	18·4	20·8	23·2	22·7
4th "	22·4	21·2	23·0	21·8	25·2	24·1	24·6	22·7	21·5	20·8
Annual Rate	23·7	22·7	23·0	22·3	24·4	23·7	23·4	23·5	22·7	22·3

TABLE III.

RATES OF DEATH IN THE DIFFERENT CLASSES OF DISEASES 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 1880)	69,091	20,221	9,657	29,046	21,351	149,366
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†	3·6	4·5	5·6	4·2	4·9	4·1
2. Constitutional	3·8	3·2	5·4	4·2	5·4	4·1
3. Local	7·8	7·4	10·3	9·0	10·0	8·6
4. Developmental	3·6	3·2	3·4	3·0	5·2	3·7
5. Violent Deaths (classed)	0·4	0·4	4·0	0·8	0·6	0·7
6. Do. (not classed)	0·1	0·1	1·2	0·1	0·4	0·2
Sudden Deaths (causes unascertained, causes not specified, or ill- defined) ..	0·6	0·6	3·0	0·7	1·1	0·8
Totals	19·9	19·4	32·9	22·0	27·6	22·3

* 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.
CLASS I.							
ZYMOTIC DISEASES.							
1. Miasmatic	223	78	52	109	100	562	16.9
2. Enthetic	6	...	4	3	...	13	0.4
3. Dietic	17	3	5	6	4	35	1.0
4. Parasitic	3	...	...	...	...	3	0.09
	249	81	61	118	104	613	18.4
CLASS II.							
CONSTITUTIONAL DISEASES.							
1. Diathetic... ..	38	8	13	14	14	87	2.6
2. Tubercular	222	56	39	107	102	526	15.8
	260	64	52	121	116	613	18.4
CLASS III.							
LOCAL DISEASES.							
Diseases of—							
1. Nervous System... ..	201	38	29	81	75	424	12.7
2. Circulatory „	74	23	27	29	24	177	5.3
3. Respiratory „	202	58	39	121	91	511	15.3
4. Digestive „	40	23	17	19	16	115	3.4
5. Urinary „	18	6	14	8	4	50	1.5
6. Generative „	3	...	...	1	1	5	0.1
7. Locomotory „	2	1	2	1	1	7	0.2
8. Integumentary „ ... ..	...	...	2	...	...	2	0.06
	540	149	130	260	212	1291	38.7
CLASS IV.							
DEVELOPMENTAL DISEASES.							
Diseases of—							
1. Children	52	12	9	22	25	120	3.6
2. Adults	14	3	2	6	6	31	0.9
3. Old People	105	24	6	19	25	179	5.4
4. Nutrition... ..	80	25	16	43	54	218	6.5
	251	64	33	90	110	548	16.4
CLASS V.							
VIOLENT DEATHS.							
1. Accident or Negligence	27	8	32	16	11	94	2.8
2. Homicide ... ..	...	...	2	1	...	3	0.09
3. Suicide	3	...	5	5	2	15	0.5
4. Executions ... ..	...	...	...	...	...	...	0.00
	30	8	39	22	13	112	3.4
Violent Deaths not classed	6	3	12	4	9	34	1.0
Sudden Deaths (causes un- ascertained) ... ..	...	...	...	...	...	...	0.00
Causes not specified or ill- defined	45	12	28	16	23	124	3.7
	51	15	40	20	32	158	4.7
Totals	1381	381	355	631	587	3335	100.0

* The number in St. Nicholas' sub-district is increased by 126 deaths in the Infirmary, and 10 in the Fever Hospital; 56 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 ...	370	103	59	200	195	927
1 Year and under 5 Years...	219	80	42	134	134	609
5 Years " 20 " ...	114	27	45	66	56	308
20 " " 40 " ...	170	43	81	66	60	420
40 " " 60 " ...	195	48	79	72	65	459
60 " " 80 " ...	266	65	44	83	68	526
80 " and upwards ...	47	15	5	10	9	86
Total (all ages) dying during the 53 weeks ended Jan. 1st, 1881	1381	381	355	631	587	3335

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 ...	7.0	2.0	1.1	4.0	3.5	17.5
1 Year and under 5 Years...	4.1	1.5	0.8	2.5	2.5	11.5
5 Years " 20 " ...	2.2	0.5	0.8	1.2	1.0	5.8
20 " " 40 " ...	3.0	0.8	1.5	1.2	1.1	8.0
40 " " 60 " ...	3.5	0.9	1.5	1.4	1.2	8.7
60 " " 80 " ...	5.0	1.2	0.8	1.6	1.3	9.9
80 " and upwards ...	0.9	0.3	0.09	0.2	0.2	1.6
Totals ...	25.7	7.2	6.59	12.1	10.8	63.0
Percentage of Deaths under 1 Year to total Deaths in Sub-District, &c. ...	26.8	27.0	16.6	31.7	33.4	27.8

TABLE VII.

BIRTHS AND DEATHS IN THE DIFFERENT QUARTERS IN THE YEARS 1877, 1878, 1879, 1880.

	BIRTHS.				DEATHS.			
	1877.	1878.	1879.	1880.	1877.	1878.	1879.	1880.
First Quarter ...	1,485	1,399	1,371	1,378	858	838	929	862
Second " ...	1,418	1,376	1,366	1,462	825	796	930	848
Third " ...	1,361	1,394	1,345	1,322	719	917	765	849
Fourth " ...	1,346	1,318	1,299	1,273	776	872	834	776
Totals ...	5,610	5,487	5,381	5,435	3,178	3,423	3,458	3,335

TABLE VIII.

DEATHS OF CHILDREN UNDER 1 YEAR AND PERSONS OVER 60 YEARS
IN 1877, 1878, 1879, 1880.

				NUMBER OF DEATHS.							
				Under 1 Year of Age.				Over 60 Years.			
				1877.	1878.	1879.	1880.	1877.	1878.	1879.	1880.
First Quarter	...	...	...	202	208	215	223	197	125	153	166
Second	„	...	...	193	158	199	225	153	138	189	150
Third	„	...	...	235	311	212	294	127	106	119	122
Fourth	„	...	...	212	211	158	185	146	139	120	174
Totals	...	...	...	842	888	784	927	623	508	581	612

TABLE IX.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 53 WEEKS
ENDED 1ST JANUARY, 1881.

CLASS.	CAUSE OF DEATH.					Westgate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	TOTAL.
I.—ZYMOTIC DISEASES.	ORDER 1.										
	Measles	...	...	...	...	1	1	...	...	4	6
	Scarlet Fever (Scarlatina)	...	...	...	...	3	1	...	...	...	4
	Croup	...	...	...	...	1	...	...	...	...	1
	Whooping-cough	...	...	...	...	23	8	4	16	6	57
	Erysipelas	...	...	...	...	2	...	...	...	...	2
	Dysentery	...	...	...	...	1	...	...	...	...	1
	Diarrhœa	...	...	...	...	39	15	4	14	23	95
	Simple Cholera	...	...	...	...	2	1	1	...	...	4
	Other Zymotic Diseases	...	...	...	...	1	1	...	1	...	3
	ORDER 2.										
	Syphilis	...	...	...	...	3	...	2	3	...	8
	ORDER 3.										
	Privation	...	...	...	...	2	1	...	...	2	5
	Want of Breast-milk	...	...	...	...	3	...	...	...	...	3
	ORDER 4.										
	Thrush	...	...	...	...	3	...	...	...	...	3
	ORDER 1.										
	Cancer	...	...	...	...	1	...	...	...	...	1
	ORDER 2.										
	Scrofula	...	...	...	...	6	2	1	2	1	12
	Tabes Mesenterica	...	...	...	...	5	3	2	12	12	34
	Phthisis	...	...	...	...	2	...	1	...	...	3
	Hydrocephalus	...	...	...	...	6	2	...	2	2	12
	Carried forward	...	...	...	...	104	35	15	50	50	254

TABLE IX.—CONTINUED.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 53 WEEKS
ENDED 1ST JANUARY, 1881.

CLASS.	CAUSE OF DEATH.	Westgate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	TOTAL.
III.—LOCAL DISEASES.	Brought forward	104	35	15	50	50	254
	ORDER 1.						
	Cephalitis ... ..	...	...	...	1	...	1
	Convulsions	57	14	8	30	18	127
	Brain Disease, etc.	6	1	...	3	7	17
	ORDER 3.						
	Bronchitis	37	10	7	36	35	125
	Pneumonia	13	3	2	6	4	28
	Lung Disease, etc.	1	1	...	1	2	5
	ORDER 4.						
	Gastritis ... ..	...	1	...	...	...	1
	Enteritis	2	3	...	5	3	13
	Ulceration of Intestines ... ..	...	1	...	...	...	1
	Stomach Disease, etc. ... ..	...	1	...	...	1	2
	Liver Disease, etc....	1	...	...	...	...	1
IV.—DEVELOPMENTAL DISEASES.	ORDER 7.						
	Joint Disease, etc. ... ..	...	...	...	1	...	1
	ORDER 1.						
	Premature Birth	38	9	7	13	13	80
	Spina Bifida	1	...	...	1	...	2
	Other Malformations	1	...	...	...	1	2
	Teething	7	...	1	6	6	20
	ORDER 2.						
	Childbirth	1	1	...	...	...	2
	ORDER 4.						
V.—VIOLENT DEATHS, &C.	Atrophy and Debility	72	20	13	37	43	185
	ORDER 1.—(ACCIDENT OR NEGLIGENCE.)						
	Fractures and Contusions	1	...	...	1	...	2
	Poison	1	...	...	...	...	1
	Suffocation	10	2	3	4	3	22
	Otherwise ... ..	...	...	2	...	...	2
	ORDER 4.						
	Violent Deaths (not classed)	2	...	1	...	2	5
	Causes not specified or ill-defined	15	1	...	5	7	28
	Representing a rate of 6·2 } per 1,000 per Annum. }						
	TOTAL	370	103	59	200	195	927

TABLE X.

NON-CERTIFIED DEATHS IN EACH SUB-DISTRICT DURING THE 53 WEEKS ENDED
1ST JANUARY, 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.
Scarlatina, Acute (Bright's Disease)	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Pertussis	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Sickness—Diarrhoea	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	2	...	...
Diarrhoea — Exhaustion	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Diarrhoea	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	...
Convulsions, brought on by Diarrhoea	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Dysentery	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Want of Nutrition	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Want of Proper Nourishment	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	..
Intemperate habits and want of Nourishment	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tubercular Peritonitis	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Tabes Mesenterica — Convulsions	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Convulsions	6	...	...	2	1	...	2	...	...	12	...	...	3	1	...	25	2	...
Fits	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Convulsive Fits	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	1	...	1
Meningitis	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...
Heart Disease	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	2
Cardiac Disease	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2
Bronchitis	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	2	...	...
Pneumonia	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Albuminuria	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Disease of Head and Bowels	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Diabetes	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Pelvic Abscesses—Exhaustion	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Disease of Spine—Convulsions	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Premature Birth	14	...	...	1	...	...	6	...	...	...	...	...	1	...	...	22	...	...
Convulsive Fit from Teething	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...
Old Age	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Debility	5	...	...	1	...	...	1	...	...	9	...	...	4	...	...	20	...	...
Bursting of a Blood Vessel	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	2
Rupture of a Blood Vessel whilst suffering from Rheumatic Fever	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Bursting of a Blood Vessel in Lungs during a Fit of Coughing	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Suddenly, from a Natural Cause	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Some Natural Cause	...	...	3	...	...	...	...	...	...	...	...	3	3	...	4	3	...	10
Exhaustion	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	2	...	...
Unknown	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Supposed English Cholera	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Difficult Labour	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Supposed from Colic, followed by Syncope	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Total	30	1	9	6	2	6	9	...	4	26	2	7	16	1	7	87	6	33

TABLE XI.

RETURN OF DEATHS FROM MIASMATIC DISEASES FOR THE 53 WEEKS ENDED 1ST JANUARY, 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	562	224	79	45	112	102
INCLUDING—						
Small-pox ... ..	...	...	...	...	...	...
Measles	15	3	2	...	2	8
Scarlet Fever	141	60	15	14	27	25
Diphtheria	4	...	2	1	1	...
Croup	18	7	2	2	1	6
Whooping Cough	129	49	22	13	33	12
Typhus ... ..	...	...	...	...	...	...
Enteric Fever	30	10	8	2	4	6
Erysipelas	10	8	1	...	1	...
Diarrhoea	172	67	21	10	33	41
Other Miasmatic Diseases	43	20	6	3	10	4
Annual Rate of Death from Miasmatic Diseases per 1,000 population of each Sub-district	3·8	3·2	3·9	4·7	4·0	4·8
Do. from Scarlet Fever	0·9	0·9	0·7	1·4	0·9	1·2
Do. from Whooping Cough	0·9	0·7	1·0	1·3	1·1	0·6
Do. from Enteric Fever	0·0	0·1	0·4	0·2	0·2	0·3
Do. from Diarrhoea	1·2	1·0	1·0	1·0	1·1	1·9

* 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.				WHOOPING 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. 1 Year & under 2. All Ages.
Westgate road	1	...	...	...	...	...	...	...	...	...	...	...	...
Colliery field	3	...	...	...	...	...	...	...	...	...	...	...	...
Buckingham street	...	...	...	...	1	...	...	...	...	...	...	...	1 2 4
Bath lane terrace	1	...	...	...	...	...	...	...	...	...	...	...	...
Abinger street	...	...	...	1	1	...	...	...	...	...	...	...	...
Hedley terrace	1	...	...	...	...	...	...	...	...	...	...	...	...
Sunderland street	...	...	...	...	1	...	...	...	...	...	...	...	...
Pine street	1	...	...	...	...	...	...	...	...	...	...	...	...
Back Hammond street	1	...	...	...	...	...	...	...	...	...	...	...	...
Hedley street	...	...	...	...	1	...	...	...	...	...	...	...	...
Hamilton street	...	...	...	...	1	...	...	...	...	...	...	...	...
Blandford street	1	...	...	...	...	...	...	...	...	...	...	...	...
Cottenham street	...	...	...	...	1	1	...	...	...	...	...	...	2
De Grey street	...	...	...	...	1	...	...	...	...	...	...	...	...
Beaumont street	1	...	...	...	...	...	...	...	...	...	...	...	...
Scotswood road	1	...	...	...	1	2	...	...	...	...	...	...	...
Hill street	...	...	...	...	1	...	...	...	...	...	...	...	1
Elswick street	...	...	...	...	2	...	...	...	...	...	...	...	...
Oystershell lane	...	...	2	...	2	...	...	...	...	...	...	...	...
George street	...	...	...	...	1	2	...	...	...	...	...	...	1 1 2
Penn street	1	1	...	1	...	...	...	...	...	...	...	...	1
Brougham place	...	...	...	...	1	...	...	...	...	...	...	...	...
John street	...	...	...	...	1	...	...	...	...	...	...	...	...
George road	...	...	...	...	2	...	...	...	...	...	...	...	...
Belgrave terrace	...	...	...	...	1	...	...	...	...	...	...	...	...
Norfolk street	...	...	...	...	1	...	...	...	...	...	...	...	...
Nellis' court	...	...	...	...	1	...	...	...	...	...	...	...	...
Strickland street	...	...	...	...	1	...	...	...	...	...	...	...	...
Lord Milton street	2	...	...	...	...	...	...	...	...	...	...	...	1 1
Gloucester street	1	...	...	...	...	...	...	...	...	...	...	...	...
Diana street	1	...	...	...	...	...	...	...	...	...	...	...	...
Snow street	1	...	...	...	...	...	...	...	...	...	...	...	...
Mill lane	1	...	1	...	...	...	...	...	...	...	...	...	1
Stanley street	1	...	...	...	...	...	...	...	...	...	...	...	...
Jefferson street	1	...	...	...	...	...	...	...	...	...	...	...	...
Marsden street	1	...	...	...	...	...	...	...	...	...	...	...	...
Gluchouse lane	2	...	...	...	...	...	...	...	...	...	...	...	...
Bayley street	...	...	...	...	...	...	...	1	...	...	...	...	...
Herbert street	...	1	...	...	1	...	...	...	...	...	...	...	...
Brougham place	...	...	...	...	1	...	...	...	...	...	...	...	...
Suffolk street	1	...	...	...	...	...	...	...	...	...	...	...	...
Bell street	...	1	...	...	...	1	...	...	...	...	...	...	1
Back Bell street	...	...	...	...	...	...	...	...	...	...	...	...	1
Oak street	...	1	...	...	...	1	...	...	...	...	...	...	...
Alexander street	...	1	...	...	...	...	...	...	...	...	...	...	...
Raglan place	...	1	...	...	...	...	...	...	...	...	...	...	...
Carried forward ...	24	6	3	2	24	5	2	...	1	...	...	...	5 4 14

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.				WHOOPING 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...	24	6	3	2	24	5	2	...	1	...	...	...	5 4 14
Panmure street	...	1	...	...	...	...	...	...	...	...	...	...	...
Edward street	1	1	...	...	...	1	...	...
Tyneside terrace	...	1	...	...	...	...	...	...	...	...	...	...	...
Workhouse	1	...	...	...	...	...	...	2
Swan street	1	...	...	...	...	...	...	...
Budle street	1	...	...	...
Dunn's cottages	1	...	...	...	...	...	...	...
Spring street	...	1	...	...	...	...	1	...	...	...	...	...	1
Sycamore street	1	...	...	...	...	...	1
Villa place	1
Seaham street	8	...	...	...	...	...	...	...	...	...	...
St. Stephen's terrace...	2	...	...	...	1	...	...	...	...	...	...
Low Elswick	1	...	...	...	...	...	...	...	...	...	...
Rye hill	1	...	...
Mansfield street	1	...	...	...	...	...	...
Cannon street	1
Spring garden lane	1
Peel street	2
Park road	1
Loadman street	1
Wharncliffe street	1	...	...	...	...	...	...	...	...	2
Back Hind street	1	...	...	...	...	...	...
Blenheim street	3
Back Blenheim street..	1
Pitt street	1 3
Barrack square	1
Churchill cottages	1
Churchill street	1
Elswick east terrace...	1 2
Warden street	1
Ramshaw street	1	...	...
Church street	2	2
Back West street	1
Clumber street	1
Cambridge street	1
Back Rendel street	1
Byron terrace	1
Back Greenhow place..	1	...	...
Oakes square	1
Bell terrace	2	...	...	...	...	1
Cromwell street	1	...	...	...	...	...	...
Back Mary street	1
Westmoreland road	1
Wellington street	1	...	...	...	...	...
Carried forward ...	24	9	14	3	24	9	8	4	1	1	4	...	29 12 51

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.				WHOOPING 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.	1 Year & under 2.	All Ages.
Brought forward...	24	9	14	3	24	9	8	4	1	1	4	...	29	12	51
Wentworth place	2	...	...	...	...	...	...	...	...	...	...	...
Charlotte street	1	...	...	...	...	...	...	...	...	...	...	...
Handyside street	1	...	...	...
Wellington terrace	1	...	...	...	...	...	...	...
Dunn street	1	...	...	...	...	...	...	...	...	...	...	...
Ashfield terrace west..	1	...	...	...	...	...	...	...	...	...	...	...
Tulloch street	1	...	...	...	...	...	...	...
Stanhope street	1	...	...	...	...	...	...	...	...	...	...	...
Derby street	1	...	...	...	...	...	...	...	1	...	...	...
Lawton street	1	...	...	...	...	...	...	...	...	...	...	...
Pine street	1	...	...	...	1	...	...	...	...	...	...	...
Vale street	1	...	...	...	...	...	...	...
Duke street	1	...	...	...
Tindal street	1	...	...	...	...	...	...	...	...	...	...	...
Rendel street	1	...	...	...
Total ...	24	9	14	13	24	9	8	8	1	1	4	4	29	12	51

DEATHS IN ST. ANDREW'S SUB-DISTRICT.															
Carloli street ...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Gallowgate ...	2	...	...	3	...	...	...	...	...	...	...	...	1	...	1
Prudhoe street ...	...	...	...	...	2	1	...	...	...	...	...	...	...	1	1
Spital tongues ...	...	...	...	...	...	3	...	...	1	...	2	1	...	...	...
Princess street ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Newgate street ...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1
Patterson's court ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Bulmer street ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Morpeth street ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
High Friar lane ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Wallace street ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Sandyford road ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Elswick court ...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...
Stamfordham place ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
High Friar street ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Percy place ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Liverpool street ...	...	...	...	...	...	1	1	...	...	...	...	...	4	...	4
Ellison place ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Leazes crescent ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Simpson street ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Carried forward...	2	1	2	3	8	11	1	...	1	1	2	2	7	1	8

TABLE XII.—CONTINUED.

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

DEATHS IN ST ANDREW'S SUB-DISTRICT.—Continued.															
LOCALITY.	SCARLET FEVER.				WHOOPING 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 Year.	Year & under 2.	All Ages.
Brought forward ...	2	1	2	3	8	11	1	...	1	1	2	2	7	1	8
Percy street	1	1	...	1
Park place	1	...	1
Clayton street	1	...	1
Percy court	2	...	2
Sheraton street	1	...	...	...	...	...	...	...	...	...	...	...	...
Albion place	1	...	1
Fleece court	1	...	...	...	...	...	...	...	...	...	...	...	...
Alexandra place	1
Crescent place	1	1
Bellegrove terrace	1	...	1
Northumberland street	1	...	...	...	...	...	...	...	...	...	1	1
Harrison place	1	...	...	...	...	...	...	...	...
Carnaby's yard	1	1
Dalrymple's court	2	...	...	...	...	...	...	...	...	...	...	...
Leazes lane	1	...	...	...
Hall's court	2	1	...	...	...	...	...	...	...	...	...	...
Total	2	1	4	8	9	11	2	...	1	1	2	4	14	4	19

DEATHS IN ST. NICHOLAS' SUB-DISTRICT.															
Back row	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...
Pitman's row	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Chambers' court	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Queen's lane	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Butchers' entry	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...
Stowell street	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...
Westgate road	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Newgate street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Castle square	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Dog-leap stairs	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Clayton street West...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
High bridge	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Back row	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Tutill stairs	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
White Friar place	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Chapel yard	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Orchard street	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...
Grey street	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Infirmery	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Colliers' entry, Close	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Castle Garth	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Low Friar street	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2
Carried forward ...	3	7	1	1	10	2	1	...	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.—Continued.															
LOCALITY.	SCARLET FEVER.				WHOOPING 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 2nd October, 1880.		
													Under 1 Year.	1 Year & under 2.	All Ages.
Brought forward...	3	7	1	1	10	2	1	...	1	...	1	...	2	1	4
Friars	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Javel group, Close	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Head of Side	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Tiger Inn, Close	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Total	3	7	1	3	10	2	1	...	1	...	1	...	4	2	7

DEATHS IN ALL SAINTS' SUB-DISTRICT.															
Blythe's nook	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Trafalgar street	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hall's yard, Silver st.	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Union street	1	...	...	...	...	...	...	...	...	...	...	2	...	...	...
Melbourne street	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Pandon street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Manor chare	...	...	...	...	2	...	...	...	...	...	...	...	1	...	1
Keelmen's Hospital	1	2	2	...	...	...	...	...	...	...	...	...	...	...	...
Stoddart street	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pandon Bank	...	...	...	...	3	...	...	...	...	...	...	...	...	1	1
Austin Friars, Manors	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Industrial dwellings..	1	2	...	2	1	...	...	...	...	...	...	...	1	...	1
Silver street	...	...	...	...	1	...	...	...	...	...	...	...	1	1	2
Dog bank	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Stepney lane	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Painter heugh	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Buxton street	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Freemen's buildings, {	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Lime street	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pilgrim street	...	...	...	...	1	...	...	...	...	...	...	...	1	2	3
Manors	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Shield street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Victoria terrace	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Wesley street	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...
Albert street	...	...	...	...	...	1	...	...	...	...	...	...	1	...	1
Stepney terrace	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...
New road	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1
Pack Horse yard	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Sarah street	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Canada street	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Robson's court, Pil-	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
grim street	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wall knoll	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Carried forward...	8	7	2	4	16	12	...	...	...	...	...	2	5	4	10

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 2nd October, 1880
													Under 1 Year. 1 Year & under 2. All Ages.
Brought forward...	8	7	2	4	16	12	...	...	...	...	...	2	5 4 10
Bell's Court, Pilgrim street }	2	...	...	1	...	...	...	...	...	...	...
Vint's buildings, New road }	...	1	...	...	...	...	...	...	...	...	...	...	1
St. Ann's street	1	...	...	...	...	...	...
Russell terrace	1	...	...	...	...	...	...
Grenville place	1 1
Albion yard, New road }	1
Gibson street	1	1
Ouse street	1	1
Chapel lane, New road	1 1
Little Blagdon street	1	...	...	...	...	1 1
Clarence street	1	1
Johnson's entry	1	1
Henry street	1	2
Clarence crescent	2	2
Argyle place	1 1
Miller's yard, Ouse st.	1 1
Pawton Dene terrace	1 1
Copland terrace	1	1
St. Mary's street	1
St. James' lane	2	...	...	...	...	...	...	...	...	...
Bedford street	1	...	...	...	...	...	...	...	...	...
Regent terrace	1	...	...	...	...	...
Albion row	1	...	...	...	...
Richmond street	1	...	...	...
Total	8	8	4	7	16	13	2	2	...	2	...	2	13 10 28
DEATHS IN BYKER SUB-DISTRICT.													
Jesmond road	...	1	...	...	...	...	...	...	...	...	...	...	...
Addison street	...	1	...	...	...	...	...	...	...	...	...	...	...
Portland road	...	1	...	...	...	...	...	...	...	...	...	1	1
Eslington terrace	1	...	...	...	...
Albion row	...	2	...	...	1	...	...	...	...	...	...	1	1
Thompson street	2	...	...	...	...	...	...	1	1
Rosedale street	...	1	...	...	...	1	...	...	...	1	...	...	...
Jesmond vale	...	1	...	...	...	...	...	...	...	...	...	1	1
Byker hill	1	...	...	...	...	...	...	...	...
Ballast hills	1	...	...	...	...	...	...	...	...	...	...
Norfolk road	2	...	...	...	...	...	...	...	...	1	1
Carried forward ...	7	3	...	...	4	1	...	...	1	...	1	...	4 1 5

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 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 2nd October, 1880.		
													Under 1 Year.	Year & under 5.	All Ages.
Brought forward...	7	3	...	...	4	1	...	...	1	...	1	...	4	1	5
Clifford street	...	3	...	...	...	...	...	...	...	...	1	...	1	...	1
Conyer's road	...	1	1	...	...	...	...	...	...	...	2	...	...	...	...
Langhorn street	1	...	...	...	...	...	...	...	...	...
Kirk street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Mawson street	...	1	...	...	...	...	1	...	...	1	...	...	...	...	...
Stepney street	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1
Rosedale terrace	1	...	...	...	...	...	...	...	...	...
Register street	1	...	...	...	...	...	...	...	...	...	...	...	...
Shields road	1	2	...	...	...	...	...	...	...	...	1	...	1
Felton street	1	...	1
Bryson terrace	1	...	2
Tynemouth road	1	...	1
Wilfrid street	1	...	1
St. Peter's	1	1	2
Molyneux street	1	...	...	...	...	...	...	...	...
Quality row	1	...	...	...	...	...	...	1	2
North view	1	...	1
Prospect terrace	2	...	...	...	...	...	...	...	...	...	...	...	...
Byker bank	1	...	1
Corbridge street	1	...	1
Union street	1	...	1
Pottery bank, St. Anthony's	1
Shipley street	1	1
Parker street	1	...	1
Appleton's buildings...	1	...	...	...	...	...	...	...	...	...	...	...	...
Bywell terrace	1	1
Burdon terrace	1	...	1
St. Lawrence	1	...	1
Headlam street	1	...	1
High Pit Farm, St. Anthony's	2	...	...	...	...	...	...	...	...
Total	7	10	6	2	4	3	2	3	1	1	1	3	19	6	28

SUMMARY OF TABLE XII.

REGISTRATION SUB-DISTRICTS.	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 2nd Oct., 1881.			
													Under One Year.	One Year and under Two Years.	All Ages.	
Westgate ...	24	9	14	13	24	9	8	8	1	1	4	4	29	12	51	
St. Andrew's ...	2	1	4	8	9	11	2	...	1	1	2	4	14	4	19	
St. Nicholas' ...	3	7	1	3	10	2	1	...	1	...	1	...	4	2	7	
All Saints' ...	8	8	4	7	16	13	2	2	...	2	...	2	13	10	28	
Byker ...	7	10	6	2	4	3	2	3	1	1	1	3	19	6	28	
Grand Total } of Deaths }	44	35	29	33	63	38	15	13	4	5	8	13	79	34	133	

TABLE XIII.

ADMISSIONS TO AND DEATHS AT THE NEWCASTLE FEVER HOSPITAL FROM
1ST JANUARY TO 31ST DECEMBER, 1880.

DISEASES.	ADMISSIONS.												DEATHS.						
	Jan.	Feb.	Mar.	April.	May.	June.	July.	Sept.	Oct.	Nov.	Dec.	Total	April.	May.	June.	Oct.	Nov.	Dec.	Total
Enteric Fever	1	2	...	1	1	4	2	5	2	18	1	...	1	1	3	1	7
Scarlet Fever	2	...	...	2	1	...	1	2	1	...	9	...	1	...	...	...	...	1
Measles	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Pneumonia	1	...	...	...	...	...	...	1	...	1	...	...	...	...	1
Pleuro-Pneumonia	1	...	1	...	...	...	...	...	...	...
Typhlitic Abscess	1	...	...	...	...	1	...	...	...	...	...	...	...
Meningitis	1	...	...	1	...	...	...	...	...	...	...
TOTAL	...	2	1	1	2	3	2	1	6	4	7	32	1	2	1	1	3	1	9

TABLE XIV.

RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS INSPECTED
DURING 1880.

PROVISIONS INSPECTED.	Amount Inspected.	CONDITION.		BAD—HOW DISPOSED OF.	
		Fit for Food.	Unfit for Food.	Destroyed by Order of Justice.	Destroyed with Consent of the Owner.
Carcases of Beef...	157½	133	24½	5	19½
„ Veal...	8	2	6	1	5
„ Mutton...	129	98	31	...	31
„ Pork...	74	55	19	...	19
„ Geese...	20	...	20	...	20
Pails of Lard ...	2	...	2	2	...

Of the 133 carcasses of beef returned as fit for food, 52 were more or less bruised during the transit of the animals. All the bruised portions were cut off and destroyed.

Four persons have been summoned before the Magistrates for being the owners of or having in their possession unsound meat intended for human food. Three were fined £5 each and costs, and one was fined 40s. and costs.

WM. HEDLEY, INSPECTOR.

TABLE XV.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH
DEPARTMENT DURING THE YEAR 1880.

28 Half Straw Mattresses.	1 Rabbit Down Bed.
7 Bed Ticks.	1 „ „ Pillow.
10 Flock Beds.	1 Feather Pillow.
2 „ Bolsters.	1 Straw Bed.
3 „ Pillows.	1 Bed Quilt.
1 Bolster Case.	1 Rug (Hearth).
INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS.	
FROM THE BOROUGH.	FROM THE FEVER HOSPITAL.
100 Beds.	1 Bed.
134 Mattresses.	3 Mattresses.
234 Pillows.	59 Pillows.
81 Bolsters.	62 Blankets.
99 Blankets.	75 Rugs.
75 Quilts.	184 Articles of Wearing Apparel.
86 Carpets.	4 Quilts.
161 Articles of Wearing Apparel.	30 Sheets.
49 Bed Curtains.	110 Books.
381 Miscellaneous Articles.	

TABLE XVIII.

SUMMARY OF PROCEEDINGS TAKEN BEFORE THE MAGISTRATES OF THE BOROUGH
BY THE SANITARY DEPARTMENT DURING THE YEAR ENDED 31ST DEC., 1880.

Nature of Complaint	No. of Cases.	How disposed of.	Amounts of Penalties Imposed.
			£ s. d.
Defective Privies and Ashpits	13	12 did Work and paid Costs, and 1 or- dered to be done by Magistrates and pay Costs ... ..	...
Defective Drains and Sinks	12	9 did Work and paid Costs, 1 dismissed, and 2 ordered to be done by Magis- trates and pay Costs ... ..	...
Defective & obstructed Water-closets ...	6	4 did Work and paid Costs, 1 fined 5s. and Costs, and 1 fined 10s. and Costs; also an order made by Magistrates for Work to be done	0 15 0
Dilapidated Yard ...	1	Fined 10s. and Costs, and an order made by Magistrates for Work to be done ...	0 10 0
Branch Drain	1	Did Work and paid Costs ... ..	...
Defective Earth-closet	1	Did Work and paid Costs ... ..	...
House unfit for human habitation	1	Did Work and paid Costs ... ..	...
Water Supply	4	3 did Work and paid Costs, and 1 fined 1s. and Costs	0 1 0
Smoke Nuisances ...	7	1 fined 5s. and Costs, 5 dismissed, and 1 fined 40s. and Costs	2 5 0
Sanitary Bye-Laws ...	6	4 did Work and paid Costs, and 2 fined 5s. and Costs each	0 10 0
Whitewashing	3	All did Work and paid Costs ... ..	...
Depositing Ashes, &c., on Carriageway ...	8	2 fined 2s. 6d. each, 2 dismissed, 1 fined 1s., and 3 ordered to pay Costs ...	0 6 0
An accumulation of Ma- nure from Cow Byre	1	Did necessary Work and paid Costs ...	...
TOTAL	64		£4 17 0

TABLE XIX.

1880.—RAINFALL, MEAN TEMPERATURE, &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.
1880.											
Jan. 3...	0.60	41.1	April 3...	0.70	41.6	July 10...	0.80	57.7	Oct. 9...	1.76	48.0
" 10...	0.00	41.4	" 10...	0.60	44.7	" 17...	1.03	57.5	" 16...	0.14	50.1
" 17...	0.52	33.3	" 17...	0.86	44.5	" 24...	0.40	57.8	" 23...	0.81	40.9
" 24...	0.10	34.0	" 24...	0.12	49.3	" 31...	1.22	58.3	" 30...	1.95	39.8
" 31...	0.00	35.4	May 1...	0.28	44.3	Aug. 7...	0.71	59.8	Nov. 6...	0.01	36.9
Feb. 7...	0.00	44.8	" 8...	0.00	45.7	" 14...	0.23	61.3	" 13...	0.11	46.2
" 14...	0.58	40.3	" 15...	0.28	47.0	" 21...	0.14	56.7	" 20...	1.63	34.8
" 21...	0.62	44.5	" 22...	0.01	55.8	" 28...	0.32	60.5	" 27...	0.48	39.1
" 28...	0.27	41.9	" 29...	0.84	52.1	Sept. 4...	0.00	65.3	Dec. 4...	0.06	47.9
March 6...	0.48	43.1	June 5...	0.16	51.6	" 11...	0.51	59.0	" 11...	0.06	48.5
" 13...	0.29	43.1	" 12...	0.15	50.5	" 18...	2.56	54.5	" 18...	0.52	36.4
" 20...	0.09	38.5	" 19...	0.34	55.7	" 25...	0.67	53.3	" 25...	0.92	36.6
" 27...	0.00	36.5	" 26...	0.42	57.9	Oct. 2...	0.10	54.6	Jan. 1...	1.60	33.5
			July 3...	0.88	59.5						
TOTAL...	3.55	Mean 39.8	TOTAL...	5.64	Mean 50.0	TOTAL...	8.69	Mean 58.2	TOTAL...	10.05	Mean 41.4

Total Rainfall during the Year 1880 = 27.93 inches.

Mean Temperature during the Year 1880 = 47.3 deg. Fahr.

APPENDIX No. II. (A.)

REGULATIONS

MADE BY THE LOCAL AUTHORITY OF THE BOROUGH OF NEWCASTLE-UPON-TYNE
UNDER "THE DAIRIES, COWSHEDS, AND MILKSHOPS ORDER OF JULY, 1879,"
FOR THE CLEANSING OF DAIRIES, COWSHEDS, AND MILKSHOPS.

COWSHEDS.

- 1.—Every person occupying a cowshed or byre shall cause the same, and the doors and other woodwork, to be thoroughly limewashed and at all times kept clean.
- 2.—Every person occupying a cowshed shall cause the same to be provided with a channel for urine, of not less than nine inches in width and three inches in depth, properly sloped towards the outside of the cowshed, so that the contents shall discharge into a public sewer.
- 3.—Every person occupying a cowshed shall cause it to be supplied with water, and shall therewith effectually flush the same in every part thereof whenever requisite.
- 4.—Every person occupying a cowshed shall cause all dung and other refuse to be from time to time removed thereout to some suitable place or receptacle situate outside of such cowshed.
- 5.—No person occupying a cowshed shall use or suffer the same to be used for any purpose other than that for which it is registered, or by which the cleanliness or sanitary condition thereof may be affected.
- 6.—Every person occupying a cowshed shall cause every part of the premises to be kept thoroughly clean and in good order.
- 7.—Every person occupying a cowshed shall cause all troughs, mangers, grain-tubs, and other receptacles for feeding or the storage of fodder within the same to be kept thoroughly clean and free from offensive smell.
- 8.—Every cowkeeper, dairyman, or purveyor of milk, shall cause his dairy or milkhousc to be at all times kept thoroughly clean.
- 9.—All vessels used by any cowkeeper, dairyman, or purveyor of milk, shall be made of non-absorbent material, which shall immediately after each occasion of being used be thoroughly scrubbed inside and outside, scalded with boiling water, and well aired; and the tables on which milk-vessels are placed shall be thoroughly scrubbed and cleansed, and no cork, bung, cloth, or other absorbent material, shall be used as a stopper of any vessel employed in the storage or delivery of milk.
- 10.—The term "dairyman," or the term "purveyor of milk," shall include the occupier of any shop or place in which milk is sold or offered for sale.
- 11.—The occupier of every byre, or cowshed, dairy, milkshop, or place for the sale of milk, shall cause a copy of these Regulations* to be affixed or suspended in some conspicuous place in such cowshed, dairy, or milkshop, and to be at all times kept and maintained so affixed or suspended in such place.

Dated this fifth day of May, 1880.

RICHARD CAIL,
MAYOR.

NOTE.—Any person who fails to comply with the provisions of the before-mentioned Order, or any of the Regulations made thereunder, is liable to a penalty not exceeding £20. Any person changing his place of abode or his place of business, must again register himself.

* To be had on application at the Corporation Offices, Town Hall.

APPENDIX No. II. (B.)

BOROUGH OF NEWCASTLE-UPON-TYNE.

INSTRUCTIONS TO THE INSPECTOR UNDER THE "DAIRIES, COWSHEDS, AND MILK-SHOPS ORDER OF JULY, 1879."

(Adopted by the Local Authority October 20, 1880.)

1.—LIGHTING AND VENTILATION (INCLUDING AIR SPACE) OF COWSHEDS.

Buildings proposed to be erected, or existing Buildings proposed to be occupied as Cowsheds.—The depth or distance between the front and back main walls of every building which it is proposed to begin to occupy as a cowshed or byre should not be less than nineteen feet, such distance to include five feet six inches for stall ground behind the trough manger, one foot ten inches for trough manger, three feet for passageway between the trough manger and the front wall, and eight feet eight inches for dropping ground and passage behind the stall ground, or some such arrangement of the available space as will afford similar accommodation, and so as to provide not less than 800 cubic feet of air space for each cow or other quadruped to be housed therein. The distance between the floor and under side of the roof in every part of every such building shall not be less than twelve feet, the width of every stall therein shall not be less than seven feet for two cows, or four feet for each single cow. Where available each front and each back main wall thereof shall contain an opening to the open air of not less than one foot six inches by one foot six inches opposite each double stall, such opening to be protected partly by glass, and the remainder to contain a sliding woodwork or other contrivance for ventilation, including at least one fixed Louvre ventilator for every four single stalls, or every two double stalls in such building. Where, in consequence of the position of the cowshed, it is impossible to provide for ventilation in the manner aforesaid, such cowshed shall be ventilated in such manner as the Sanitary Committee shall determine.

Existing Cowsheds.—Every building occupied as a cowshed or byre shall contain, exclusive of the doorway, an opening or openings through the walls or roof, glazed for lighting, and of a superficial area in the proportion of not less than one square foot for each 800 cubic feet of space contained in such byre; and other opening, or openings, for ventilation of a superficial area in the proportion of not less than one square foot for each 800 cubic feet of such space contained in such byre, the position of such opening for lighting and ventilation to be approved by the Medical Officer of Health or other officer appointed by the Local Authority to inspect such building.*

No building occupied as a cowshed or byre shall be used for housing a greater number of cows than is specified on the register, and the space for each cow therein shall not be less than 800 cubic feet, no height of the byre in excess of sixteen feet being taken into account in estimating the capacity of such byre.

2.—DRAINAGE.

Proposed Cowsheds.—The interior of every building proposed to be occupied as a cowshed shall be disconnected from the drain of such building so that the urine and other liquid refuse shall discharge over a properly trapped grate in the open air.

Existing Cowsheds.—The interior of every building occupied as a cowshed shall be disconnected from the drain of such building unless such disconnection is of necessity to be made on the public street, under which circumstance such other system of drainage shall be adopted as shall be approved by the Medical Officer of Health.

Every building, whether occupied or proposed to be occupied as a cowshed, at the making of the Cowsheds, Dairies, and Milkshops Order of July, 1879, or not, shall be provided with a properly constructed drain of glazed earthenware pipes of not less six inches in diameter.

* A plan of a Model Byre may be seen on application to the Inspector under the Order.—(See also Appendix No. II. (C.) to this Report.)

Every person occupying a cowshed shall cause the ground behind the stalls thereof to be properly sloped towards the stall ground, and covered with good cement, grooved and made rough on the surface.

3.—WATER SUPPLY

Every cowshed shall be provided with a plentiful supply of water, laid on to the interior by the pipes of the Water Company.

The Inspector shall, as far as possible, urge upon the owners and occupiers of buildings proposed to be used as cowsheds the desirability of such buildings being detached and situated in their own yard at a distance of at least twenty feet from any human dwelling.

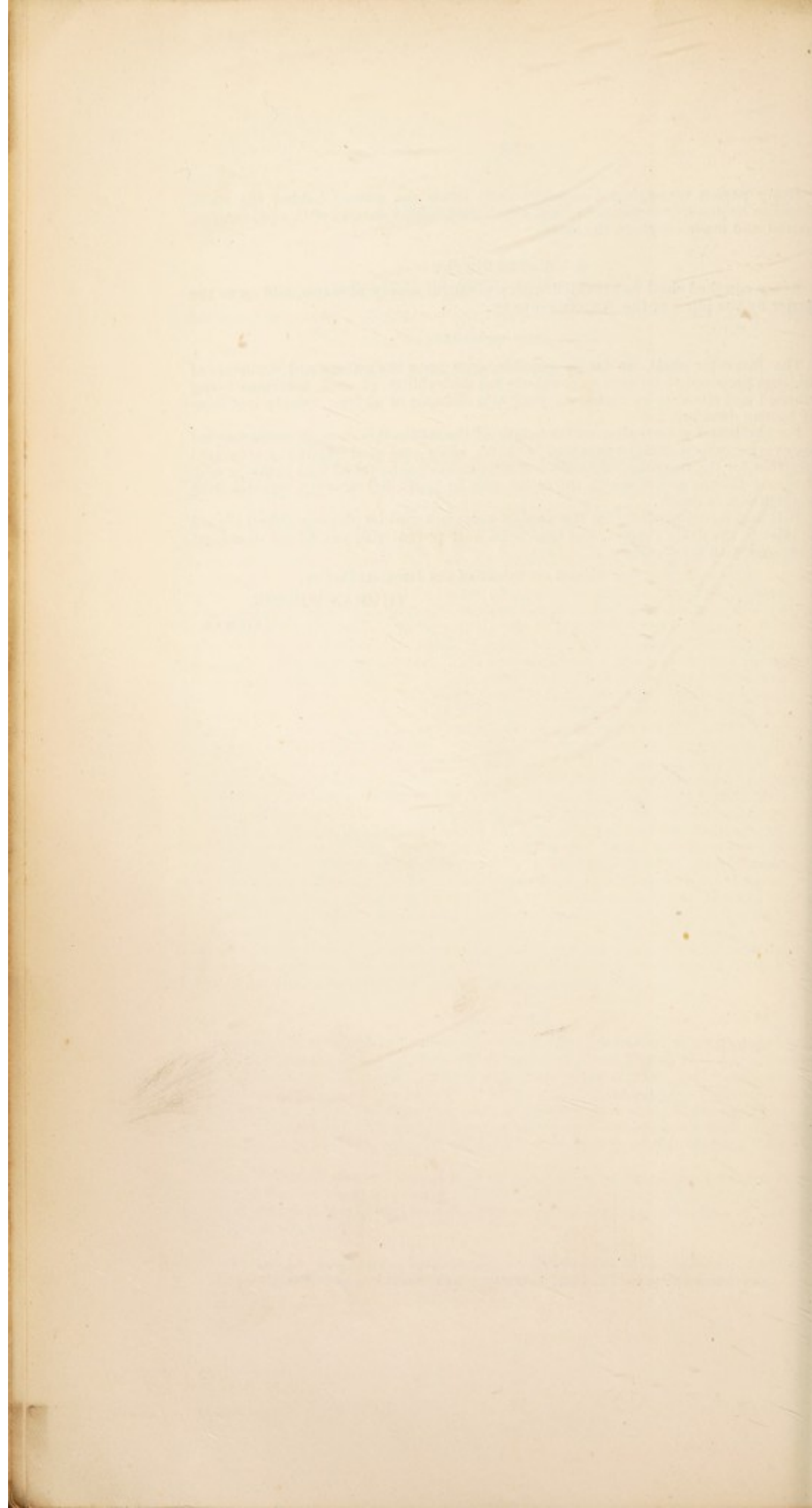
For the better preservation of the health of the cattle, it is strongly recommended that every cowshed shall be provided with an additional shed effectually separated therefrom for the reception of cattle suffering from or threatened with contagious or infectious disease, and in which the cattle may be kept until recovery, removal from the premises, or death.

It is also recommended that the yard of every cowshed be properly sloped toward the inlet to the drain thereof, and that it be well paved with paving set in cement or covered with good cement.

Signed on behalf of the Local Authority,

THOMAS WILSON,

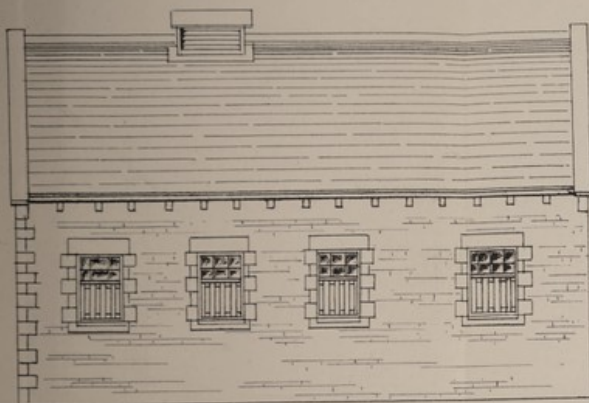
CHAIRMAN.



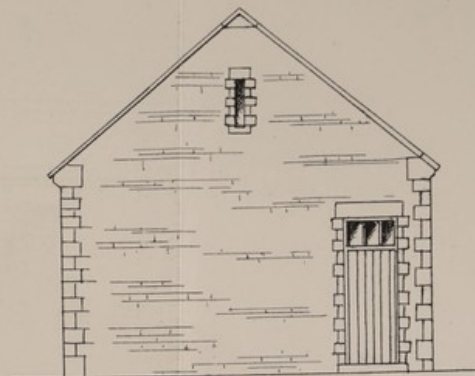
BOROUGH OF NEWCASTLE UPON TYNE.
1880.

PLAN OF MODEL COW BYRE.

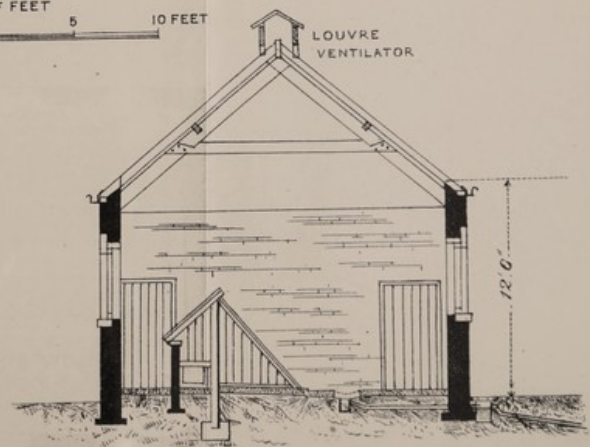
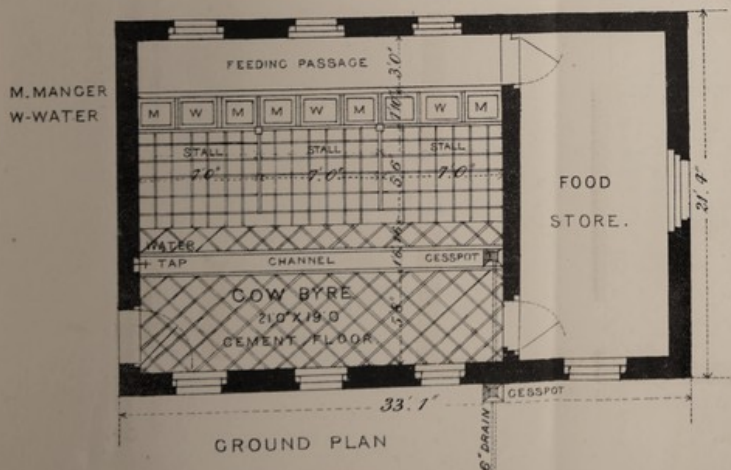
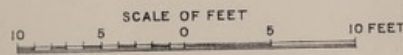
REPORT OF MEDICAL OFFICER OF HEALTH, 1880.
APPENDIX No. II. (c.)



SIDE ELEVATION



END ELEVATION



DRAWN BY R.F.W. LIDDLE
BUILDING INSPECTOR

BOROUGH OF NEWCASTLE-UPON-TYNE.

TENEMENT PROPERTY
GEORGE STREET WEST

APPENDIX No. III. (A.) REPORT OF MEDICAL OFFICER OF HEALTH, 1880.



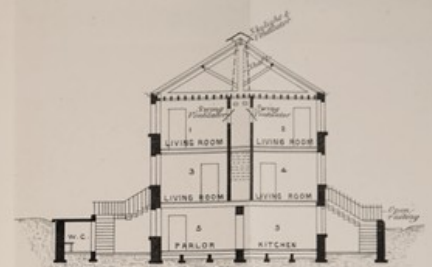
BASEMENT PLAN

NOTE. This plan shows the alterations in the position of doors to bedrooms to improve the ventilation as ordered to be carried out by Sanitary Committee.

Two Tenements of 2 rooms each.

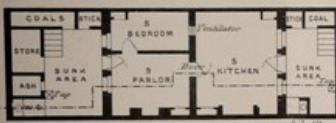


SECTION A-B. ON PLANS Nos 1, 2, 3.



SECTION C-D. ON PLANS Nos 4, 5, 6.

No 4



BASEMENT PLAN

NOTE. The alterations shown on this plan are not carried out.

One Tenement of 3 rooms. Ash Closet.



GROUND PLAN

NOTE. The numbers on plans & Sections, refer to the Tenements. See large sheet appended No. 12 for details of Ventilators, Sunk areas & Skylight &c.

Two Tenements of One room each.

No 6



1ST FLOOR PLAN

Two Tenements of 2 rooms each.

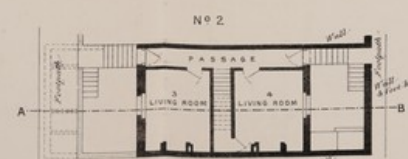
PLANS SHewing ALTERATIONS SUGGESTED TO IMPROVE THE SANITARY
CONDITION OF HOUSES, FEBRUARY 25TH 1880.

No 1



BASEMENT PLAN

Two Tenements of 2 rooms each.



GROUND PLAN

Two Tenements of One room each.

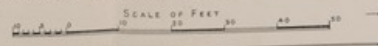
No 3



1ST FLOOR PLAN

Two Tenements of 2 rooms each.

PLANS SHewing ORIGINAL CONDITION OF HOUSES.



R. F. W. LIDDLE
BUILDING INSPECTOR.

BOROUGH OF NEWCASTLE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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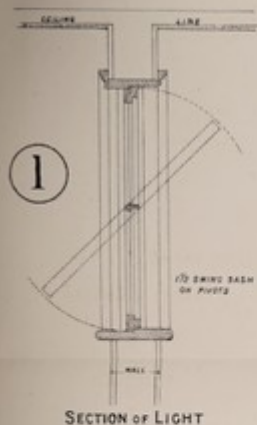
NEWCASTLE BOROUGH

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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BOROUGH OF NEWCASTLE UPON TYNE.

SKETCHES SHewing SUGGESTED METHODS FOR VENTILATING ROOMS AND LIGHTING STAIRCASES IN TENEMENT DWELLINGS.

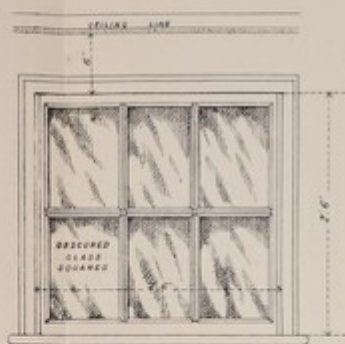
JULY, 1880.



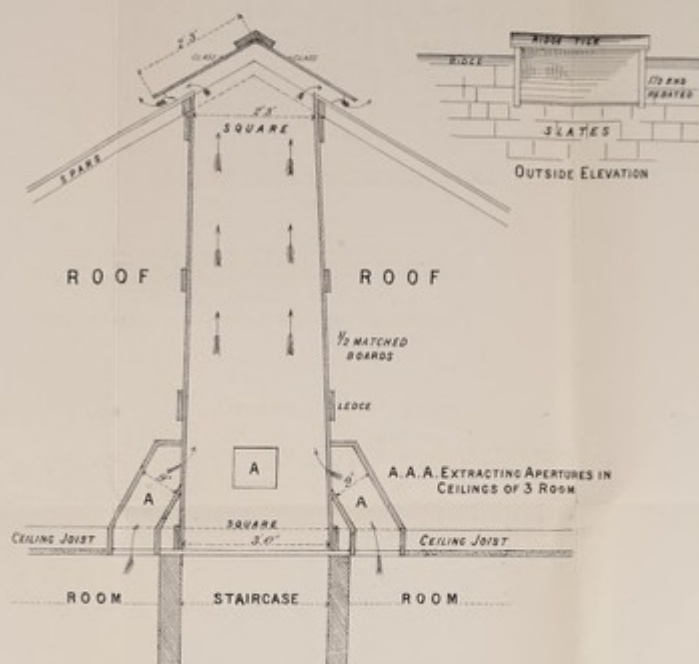
SECTION OF LIGHT

SWING LIGHT NEXT STAIRCASE IN LIVING ROOM

Scale One Inch.



ELEVATION OF LIGHT

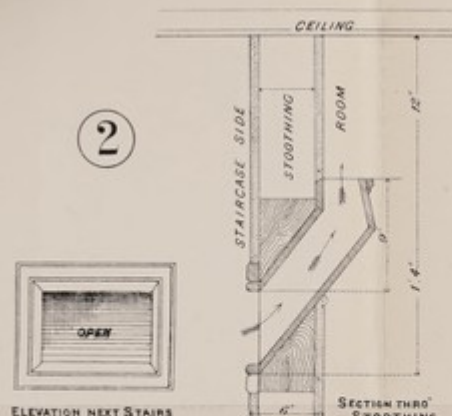


SECTION OF VENTILATING SHAFT AND LIGHT TO STAIRCASES

Scale Half Inch.

NOTE. The Ventilating shaft and Roof Light shown in the above Drawing may be used in place of the living Light, Ventilating Apertures, and Windows in the Room as shown in Sketches N° 12 and 13 on this sheet, if preferred.

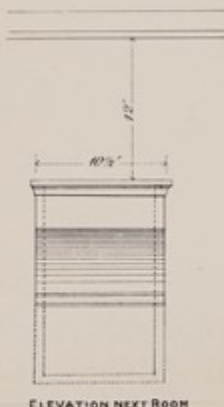
NOTE. A 3/4\"/>



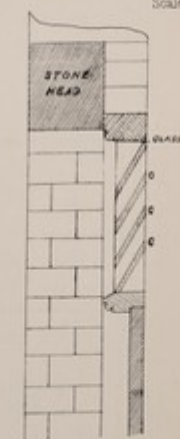
ELEVATION NEXT STAIRS

VENTILATING APERTURE FOR THE ADMISSION OF AIR FROM STAIRCASES INTO WELL ROOMS.

Scale One Inch.



ELEVATION NEXT ROOM

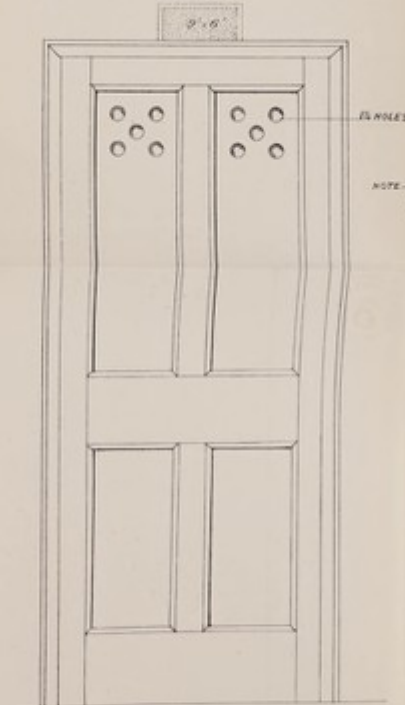


SECTION OF FANLIGHT

Scale One Inch.



ELEVATION OF FANLIGHT OF FRONT DOOR
SHEWING GLASS LOUVRES FOR VENTILATION.

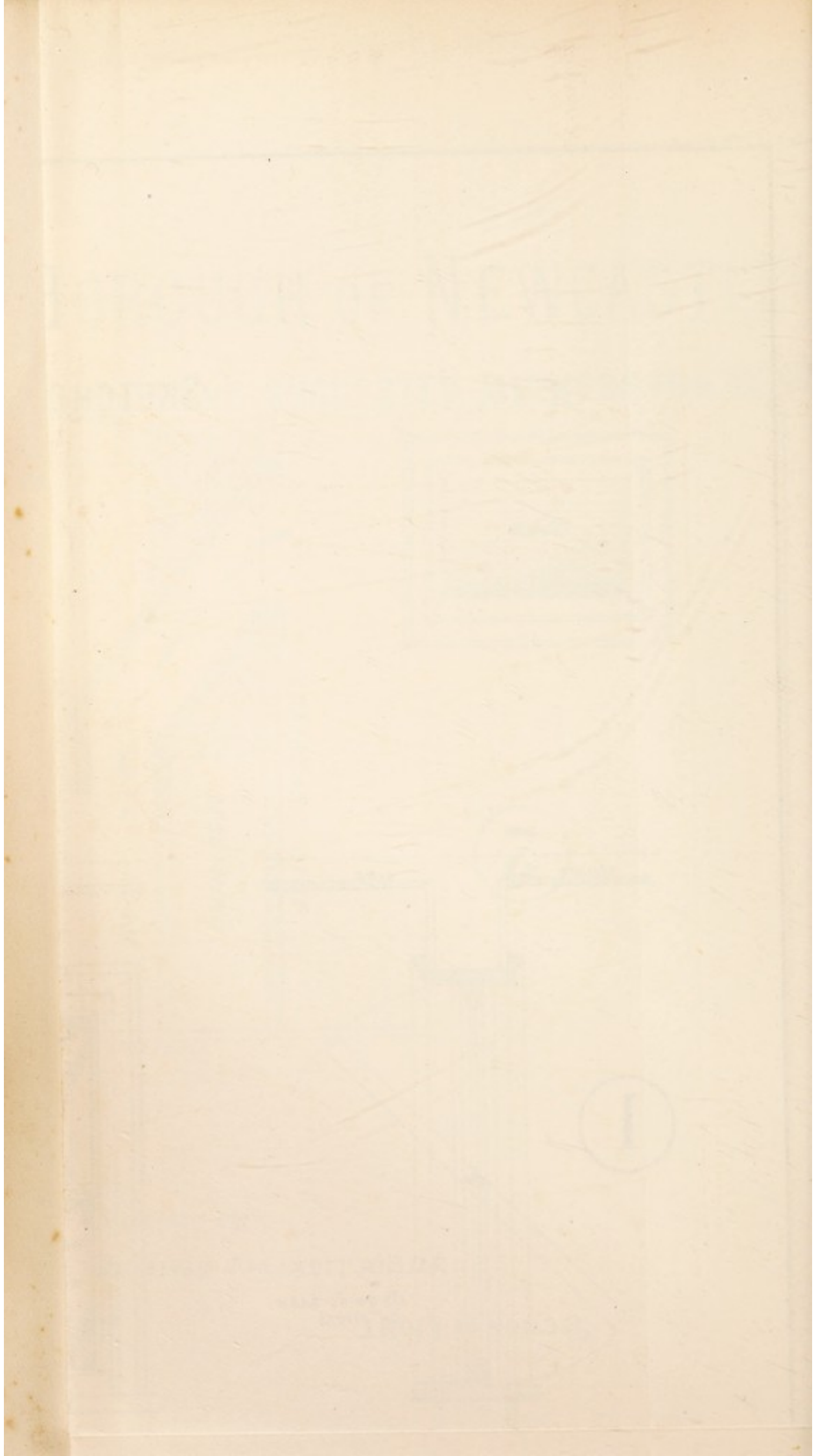


DOOR BETWEEN WELL ROOM AND LIVING ROOM
SHEWING 1/4 CENTRE BIT HOLES IN TOP PANELS FOR VENTILATION.

Scale One Inch.

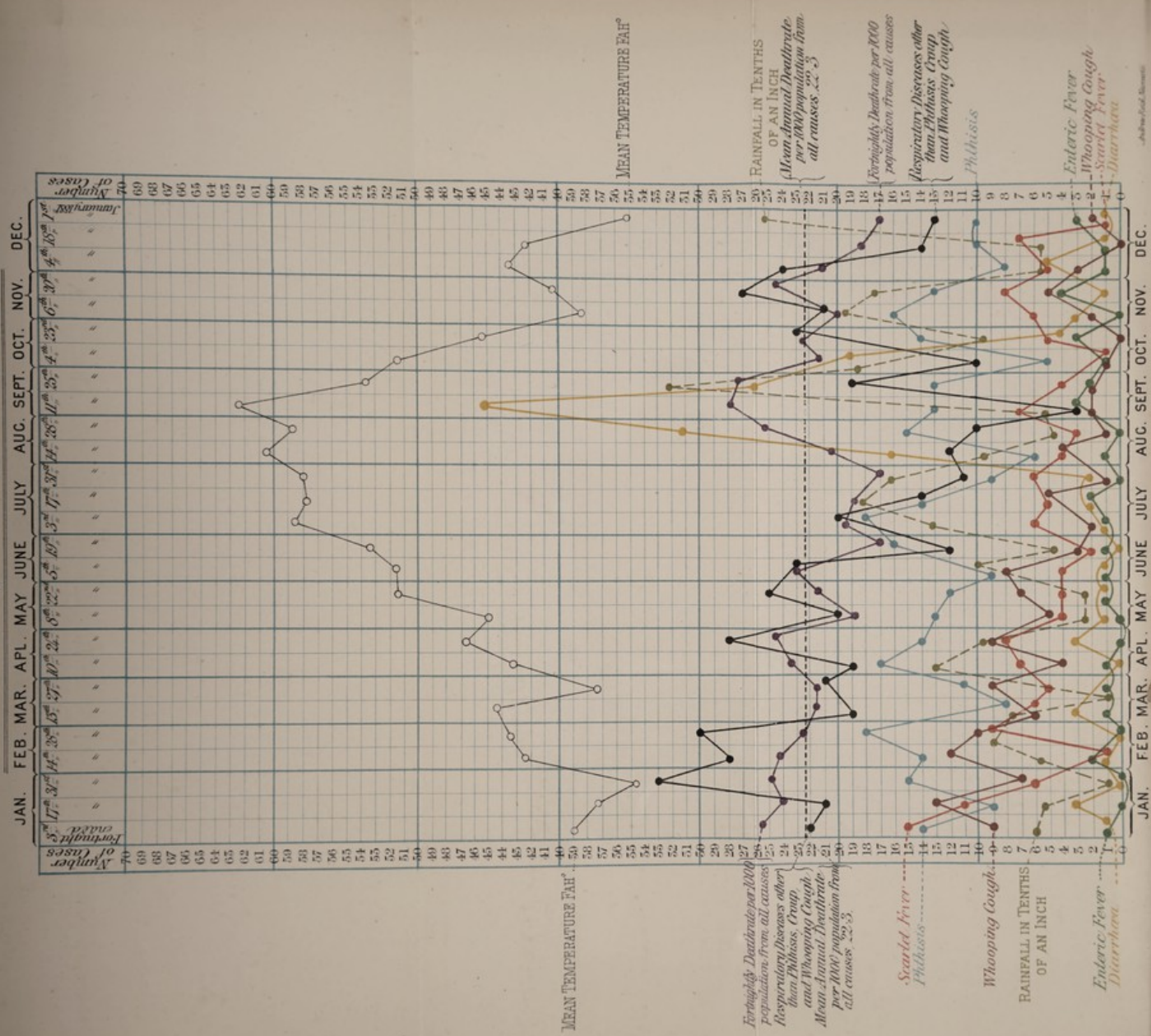
NOTE. Similar holes to be bored in panels of back door in passage.

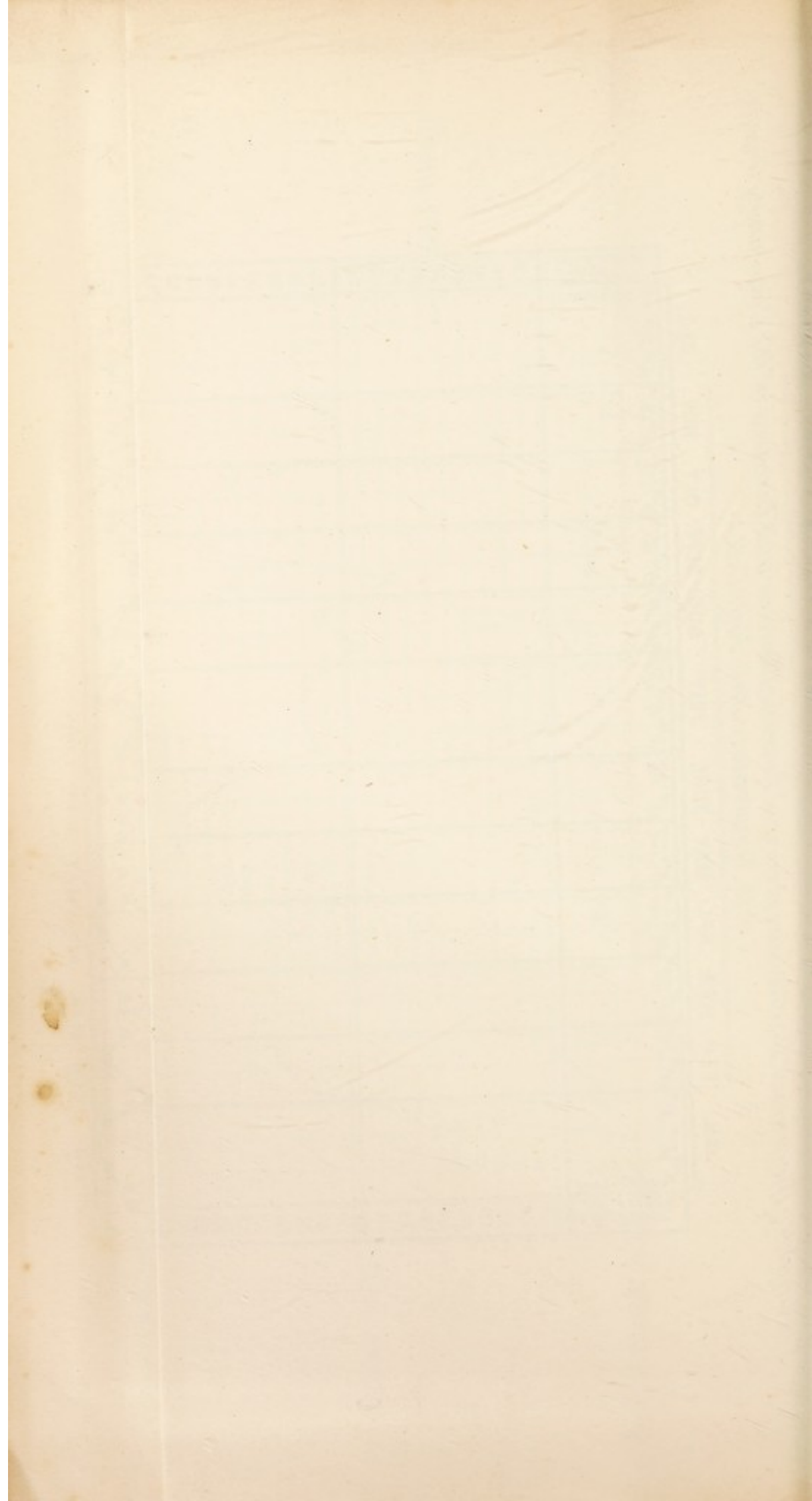
3



BOROUGH OF NEWCASTLE UPON TYNE, 1880.

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







PLAN
OF THE BOROUGH OF
NEWCASTLE UPON TYNE.

As far as the Boundaries of the
Borough extend.

Scale: 1 inch to 1 mile.

1879.

Published by ANDREW REID,
Printing Office Buildings, 8 Eldon Square, Newcastle-upon-Tyne.

EXPLANATION.

- Walls & Boundaries
- Parish and Sanitary Boundaries
- County Boundaries
- Sanitary Boundaries
- Proposed Boundaries



NEWCASTLE UPON TYNE,
PREVALENT ZYMOTIC DISEASES,
1880.

- SCARLET FEVER x DEATHS
• Cases not fatal (chiefly in Dispensary practice)
- ENTERIC FEVER x DEATHS
• Cases not fatal (chiefly in Dispensary practice)
- WHOOPIING COUGH x DEATHS
- DIARRHÆA x DEATHS during Autumn Quarter

N.B. The areas shaded green are the Public Parks and open recreation grounds of the Borough.

Wm. Armstrong
Sanitary Officer of Health

