[Report 1878] / Medical Officer of Health, Leicester Borough.

BOROUGH OF LEICESTER.

ANNUAL REPORT

ON THE

MORTALITY FROM

ZYMOTIC DISEASES,

AND THE

INFANTILE MORTALITY,

DURING THE YEAR 1878,

BY

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Presented to the Sanitary Committee of the Town Council, on the 21st February, 1879.

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TO THE MEMBERS OF THE SANITARY COMMITEE OF THE TOWN COUNCIL OF LEICESTER.

MR. CHAIRMAN AND GENTLEMEN,

I beg to submit to you my Annual Report on the mortality, experienced in your Borough, from Zymotic diseases, during the year 1878.

In a separate chapter, I have endeavoured briefly to lay before you the results of my enquiry (instituted at your special request) into the particular diseases of infancy that give rise to the exceptionally high infantile mortality which, for some years past, has unhappily distinguished the town.

To DR. J. MAULE SUTTON, of Oldham, and W. JEROME HARRISON, F.G.S., Leicester, my best thanks are due for their kindness in supplying me with Meteorological Returns.

I desire also to express my grateful acknowledgments to the TOWN CLERK for the valuable assistance he has rendered me.

I have the honour to be,

Mr. Chairman and Gentlemen,

Your obedient Servant,

WILLIAM JOHNSTON.

MELBOURNE STREET,
UPPER KENT STREET.

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REPORT

ON THE

MORTALITY FROM

ZYMOTIC DISEASES,

DURING THE YEAR 1878.

The total deaths from all causes during the year 1878 were 2,500. The mortality for the year averaged 20·58, and was the lowest rate ever recorded in the Borough with the single exception of that for 1860, when the rate was 20·36. As it may interest some to compare the general death-rate of 1878 with the averages of former years, I here give a summary of them for the last 33 years.

Summary of General Death-Rates per 1000 of the Population.

Years.	1845–1851.	1852–55.	1856–61.	1862–66.	1867–72.	1873–77.	1878.
All ages, both sexes	26·4	25·4	24·5	25·2	26·0	23·4	20·6
Under 1 year both sexes	8·0	7·9	7·4	8·1	9·3	8.5	7·9

The atmospheric vicissitudes during 1878 were more varied and of greater severity, presented more sudden alternations, and were

therefore more tentative of the general constitution of the town, than those experienced for some years past. So marked an improvement in the general death-rate under such adverse weather conditions, offers the clearest proof of the good results which have attended the energetic efforts of the Sanitary Authority. The reduction in the deaths was observed chiefly amongst those of adult age and children over five years.

During the year the deaths of children under one year were 971, equal to 7·94 per 1000 of the population, or 203 to every 1000 births registered. These rates, although exhibiting an improvement upon the averages of former years, were nevertheless exceptionally high and indicated that disease-inducing influences were in active operation, the potency of which, though insufficient to operate fatally upon adult ages, proved most destructive to infant life. As the strength of a chain is that of its weakest link, we cannot consider the sanitary condition of the town satisfactory so long as causes are in force that give rise to such high fatality amongst its infantile population. The Sanitary Committee have been, and are still, making strenuous efforts to reduce the infantile mortality, and, as last year's death-rate shews, their exertions in this direction have not been in vain. I have no doubt that year by year still more fortunate results will be arrived at and a marked permanent reduction of infantile deaths eventually secured.

The deaths from the whole class of Zymotic diseases during the year under consideration were 512. The ages and sex of these fatal cases were as follow:—

Under 1 year	302	viz.:	males,	150	; females,	152
Over 1 year and under 5 years	140	,,	,,	66	,,	74
5 years and over	70	,,	,,	37	,,	33
All ages, both sexes	512	,,	,,	253	,,	259

From the above analysis of the ages it will be seen that 59 per cent. of the deaths from Zymotic causes were infants, 86·3 per cent. were infants and children who had not completed their fifth year, and only 13·7 per cent. were persons whose ages extended upwards from 5 to over 80 years.

The number of deaths from the seven principal Zymotic diseases, of which this Report takes chief cognizance, amounted to 478, and represented a rate of 3·935 per thousand of the population, or a little over 19 per cent. of the deaths from all causes. It will be seen from the subjoined Table (I.) that these rates show an augmentation on the corresponding ones for 1877.

TABLE I.

SHEWING THE POPULATION AND TOTAL DEATHS—ALSO THE DEATHS FROM THE SEVEN PRINCIPAL ZYMOTIC DISEASES WITH THEIR RATIO PER 1000 OF POPULATION AND PER 1000 OF TOTAL DEATHS FOR THE YEARS 1874, '75, '76, '77, AND 1878.

	Population.	Total Deaths from all causes.	Total Deaths from the seven principal Zymotic Diseases.	Deaths per 1000 of Population.	Proportion of Deaths to 1000 Deaths.
1874	106,202	2520	398	3·882	156·5
1875	111,000	2889	694	6·252	240·2
1876	113,581	2558	572	5·124	223·6
1877	117,461	2515	358	3·047	142·3
1878	121,473	2500	478	3·935	191·2

The increase in the Zymotic rate of last year depended almost wholly upon a greater mortality having been experienced from diarrhœa, the deaths from this cause shewing an excess of 117 over those in the previous year. An increase, much less in degree, was also shewn in the deaths recorded from Measles, Whooping-cough, and Fever; a decline was, however, observed in the deaths from Small-pox, Diphtheria, and Scarlet Fever.

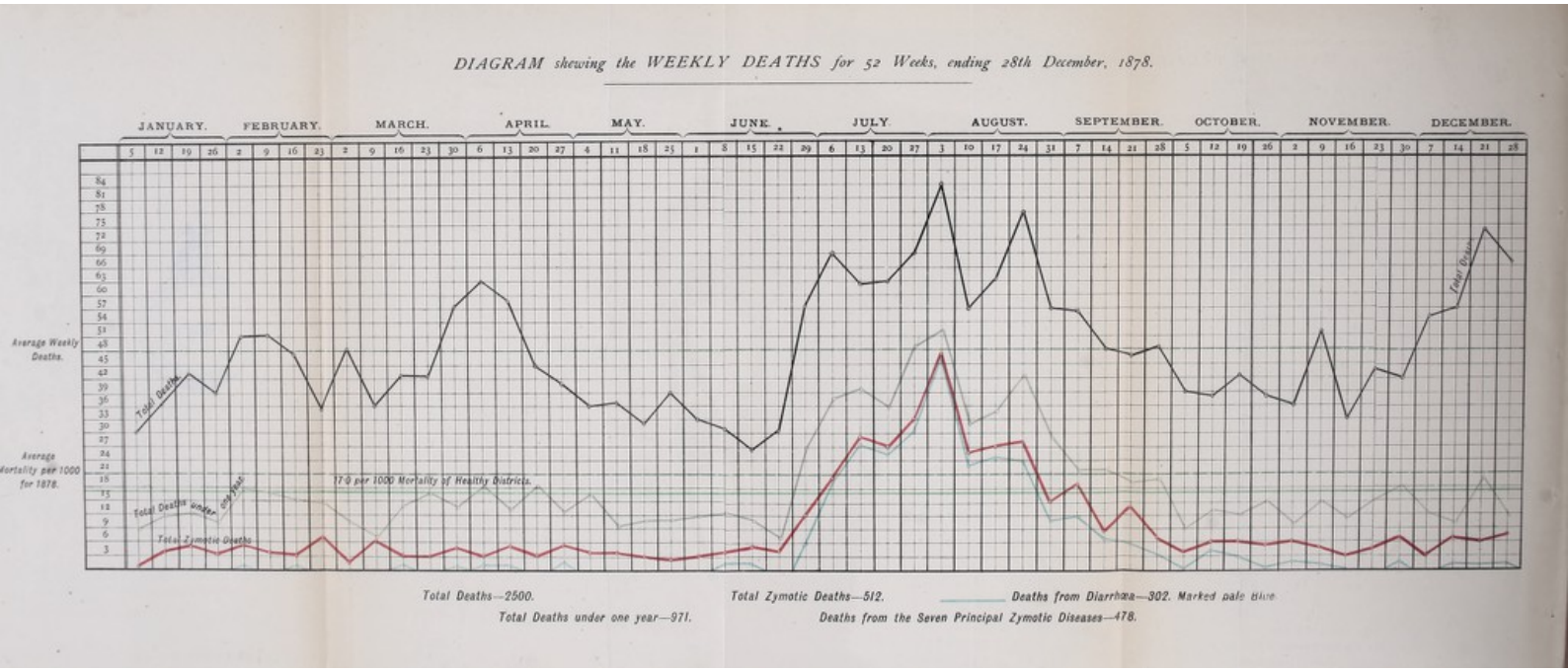
For the sake of comparison with previous years, the rates for the seven epidemic diseases are given in the annexed Table (II.).

TABLE II.

SHEWING THE DEATHS FROM THE SEVEN PRINCIPAL ZYMOTIC DISEASES IN THE TWELVE YEARS, 1866 TO 1877, AND IN THE YEAR 1878.

Disease.	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	Proportion of Deaths to 1000 Deaths in 1877.	1878	Proportion of Deaths to 1000 Deaths in 1878.
Small-pox	3	2	1	0	0	12	346	2	0	0	0	6	2·385	1	0·4
Measles	13	2	247	43	42	35	36	62	24	49	50	40	15·904	45	18·0
Scarlet Fever.....	9	40	9	8	263	112	5	6	18	175	173	33	13·121	12	4·8
Diphtheria.....	3	3	10	9	11	7	2	9	8	7	10	9	3·578	5	2·0
Whooping-cough ...	20	62	6	70	56	32	51	64	43	91	33	65	25·844	82	32·8
Fever	53	42	63	57	52	65	64	55	48	64	43	20	7·952	31	12·4
Diarrhœa	147	209	349	272	240	303	305	314	257	308	263	185	73·558	302	120·8
Total	248	360	685	459	664	566	829	512	398	694	572	358	142·345	478	191·2

DIAGRAM shewing the WEEKLY DEATHS for 52 Weeks, ending 28th December, 1878.



It is of considerable moment to observe the ages and sex of the deaths from these seven diseases. They are as follow:

Under 1 year	295;	viz.:	males,	146;	females,	149
1 year and under 5 years ...	130;	,,	,,	59;	,,	71
5 years and over	53;	,,	,,	29;	,,	24
All ages, both sexes	478;	,,	,,	234;	,,	244

If attention be now directed to the accompanying mortality chart, it will be found that the *red* line, indicating the weekly deaths from the seven Zymotic diseases, preserves a uniformly low and almost unbroken course from the beginning of the year until the week ending June 29th. During this week it exhibits an abrupt rise, and continues the ascent until the week ending August 3rd. From this time it descends, but, in doing so, follows a course more broken and gradual than in its previous rise, and does not regain the original level until the week ending October 5th. From this date until the end of the year it pursues a course similar in character to that observed throughout the first half of the year. The great mortality wave here figured, and strictly confined as it is to the *third* quarter of the year, owes its origin, summit, and decline entirely to the diarrhœal fatality that was at that time experienced. Throughout the three remaining quarters of the year the town was remarkably free from Zymotic disease; indeed, during the first, second, and fourth quarters, the population suffered less from controllable disease than almost any other town of importance in England. This remarkable fact I have endeavoured to shew on the four following plates. The quarterly Zymotic rates of each town are here drawn on scale, which will enable my readers to recognise more easily than by any numerical method the precise relationship which Leicester held to other towns with respect to preventable mortality.

Plates I. and II. represent the town as having suffered but little from Zymotic disease when compared with the other nineteen large towns.

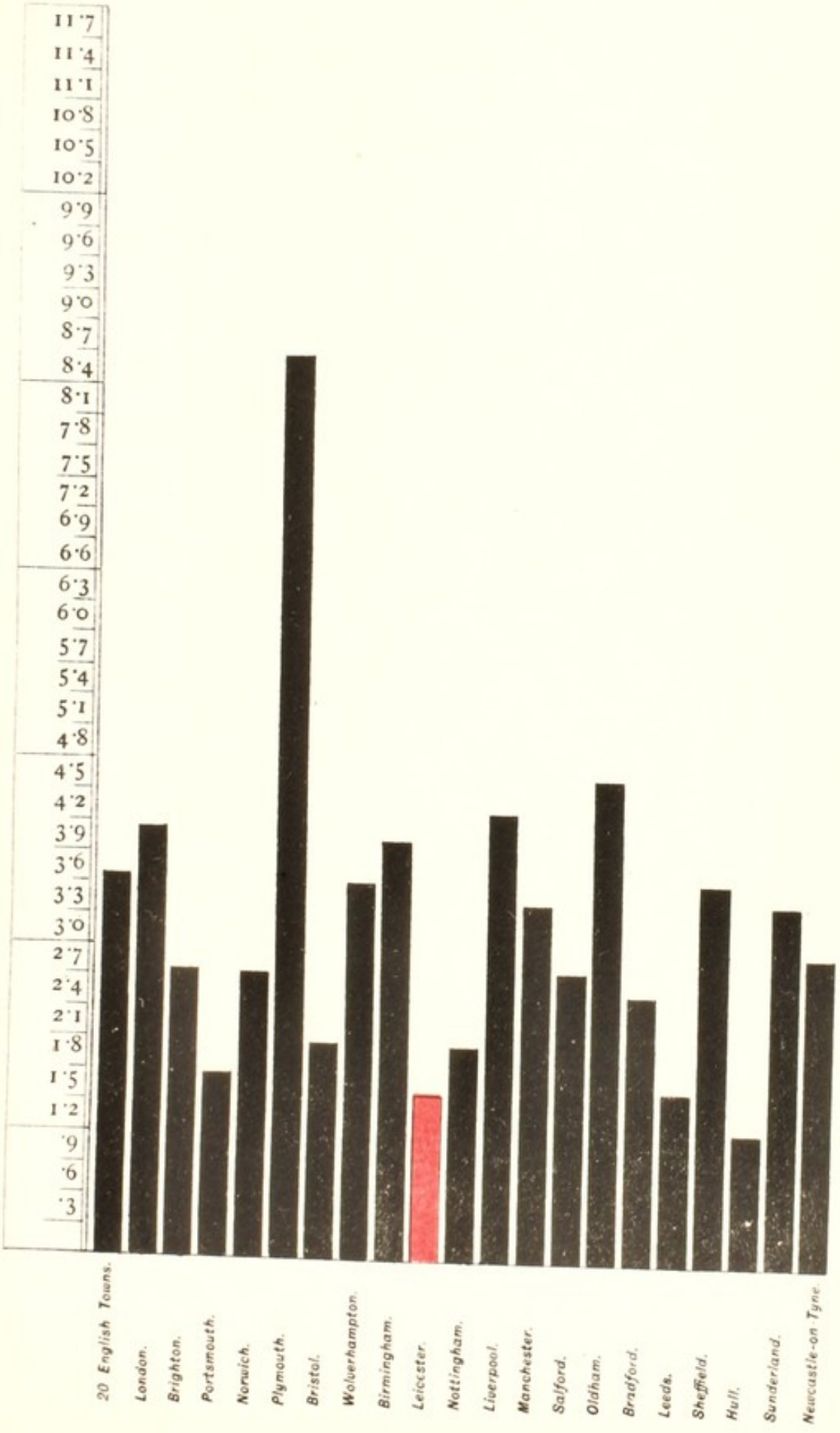
On referring to Plate III., which indicates the death-rates from Zymotic maladies during the summer quarter, it will be observed that the rates of most of the towns exhibit a considerable increase over

those of the two previous quarters, due in great measure to diarrhœal fatality. The rise in the mortality of some of the towns is, however, much greater than in others, and in Leicester is so great in degree as to effect a complete alteration in the previous relationships of the town, for with the exception of Hull, the mortality reaches higher limits than in any of the towns tabulated.

Plate IV. shews that the town during the winter quarter once more enjoyed comparative immunity from Zymotic mortality. I say immunity from *Zymotic* mortality, for it must not be supposed that the death-rate from other causes was subject to an equally satisfactory decline. The death-rate of children under one year from convulsions, wasting diseases, &c., still continued high. This fatality amongst children may be accounted for if we take into consideration the influences to which many of them were, during life, subjected. The majority lived under, and were impressioned by, the fatal influences that prevailed during the previous quarter. Some of them had suffered from prolonged attacks of diarrhœa and ultimately recovered. The convalescents were, however, in many. instances left either with enfeebled constitutions or shrunken frames; amongst such life held but a feeble tenure, and subsequent ills, which more robust constitutions would have borne with impunity, were here sufficient to cause death.

PLATE I.

Urban Zymotic Relationships for the Quarter ending 30th March, 1878.




OF SURGEONS OF ENGLAND
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PLATE II.

Urban Zymotic Relationships for the Quarter ending 29th June, 1878.

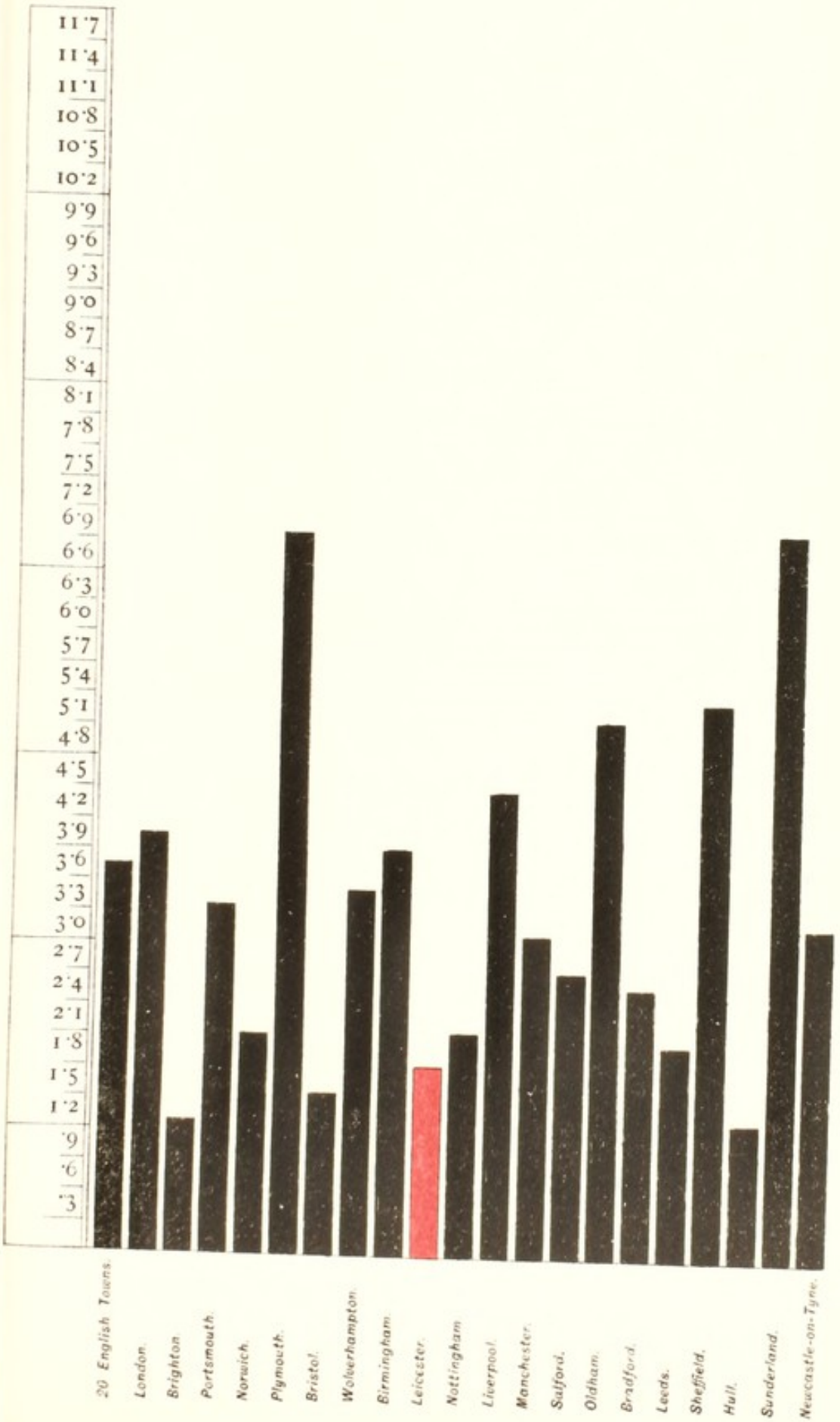
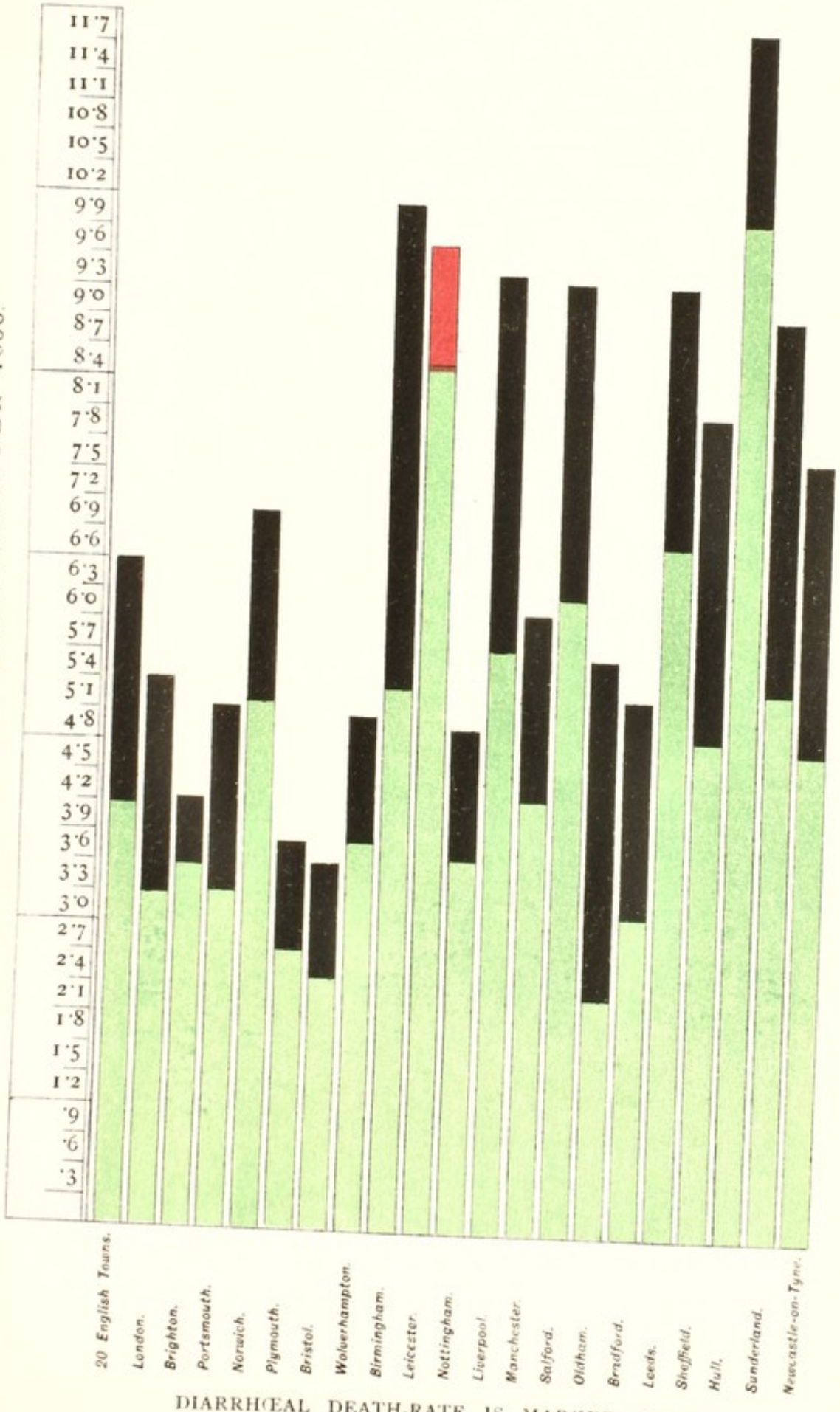


PLATE III.

Urban Zymotic Relationships for the Quarter ending 28th September, 1878.



DIARRHŒAL DEATH-RATE IS MARKED GREEN.


ROYAL COLLEGE OF SURGEONS OF ENGLAND
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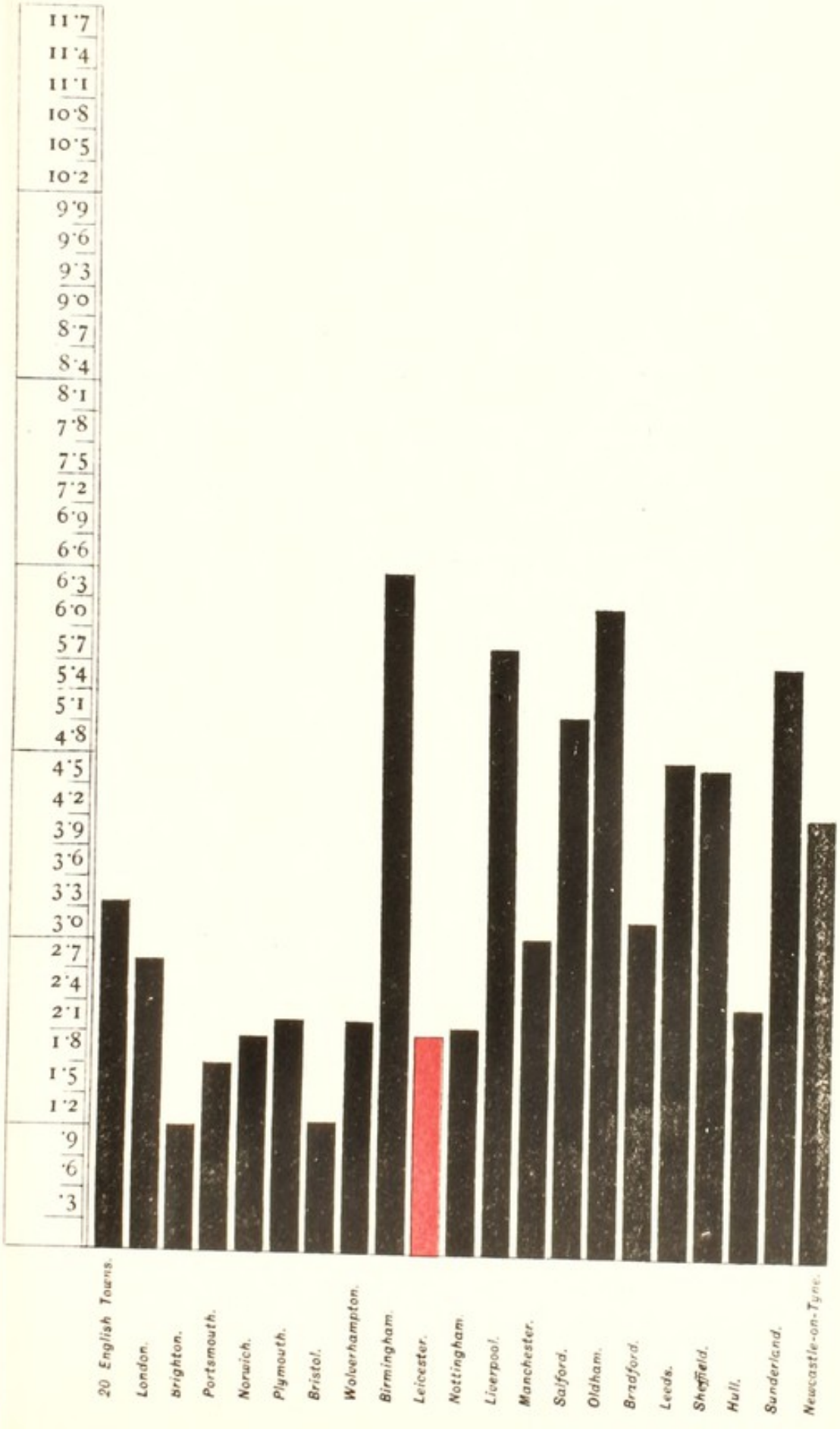
PLATE IV.

Urban Zymotic Relationships for the Quarter ending 28th December, 1878.



CAUSES OF DEATH.

SMALL POX.

Only one death, I am happy to say, took place from Small Pox during the year.

The disease was imported by a family of vagrants from London. These people had taken up their residence in a lodging-house in Abbey Street, and two of them were suffering from Small Pox. Notice was given to the Sanitary Inspectors of the existence of the disease, and the cases were forthwith removed to the Hospital. The following day, after considerable difficulty, I prevailed upon all the other lodgers in the house, nineteen in all, to allow themselves to be placed in quarantine at the Hospital. The lodging-house, thus emptied, was thoroughly disinfected, and some of the bedding destroyed. A few days afterwards another case was reported to exist in a yard opposite the house where the others had resided. This case was immediately removed, and the parents were quarantined in the Hospital, the house also being disinfected like the previous one. The Inspectors kept a careful watch over all the houses in the vicinity, but no fresh case appearing, the outbreak was found to have been stamped out. But for the facilities afforded by the Hospital for isolation, there is no doubt that the disease would have spread rapidly over the town and given rise to great mortality, as it was of a virulent form—the confluent. Three of the quarantined people sickened after admission; one on the second day, one on the fourth day, and one on the eleventh day, shewing that each one had received the infection previous to entry into the Institution.

The annexed Table presents a str'king example of the cyclical recurrence observed in the visitations of this disease during the last twenty-seven years.

TABLE III.

NUMBER OF DEATHS FROM SMALL POX, AND POPULATION IN EACH YEAR FOR TWENTY-SEVEN YEARS, FROM 1852 TO 1878 INCLUSIVE.

YEAR.	POPULATION.	DEATHS.
1852	61,403	52
1853	62,164	11
1854	62,925	0
1855	63,686	0
1856	64,447	1
1857	65,208	17
1858	65,969	53
1859	66,730	3
1860	Census—68,056	2
1861	68,257	1
1862	68,797	0
1863	72,130	5
1864	78,337	104
1865	80,500	10
1866	83,750	3
1867	86,000	2
1868	90,000	1
1869	91,500	0
1870	Census—95,083	0
1871	97,500	12
1872	100,829	346
1873	102,515	2
1874	106,202	0
1875	111,000	0
1876	113,581	0
1877	117,461	6
1878	121,473	1
		633

It would appear from the above that the regularity of the visitation of the disease was preserved by its appearance in the town during 1877 and 1878. The mortality, however, which marked its previous returns was, in these last instances, confined within very narrow limits.

MEASLES.

During the last four years the mortality from this disease has shewn but slight variation. Its prevalence during the year was at its minimum during the winter quarter, and only three deaths were recorded up to the end of March. Under the favouring atmospheric conditions of the spring quarter, the affection became more wide-spread and the mortality increased, fourteen deaths having occurred in this quarter. During the third and fourth quarters of the year the prevalence and mortality were sustained, thirteen deaths having been registered during the third quarter, and fifteen in the fourth. The total mortality was forty-five, an increase of five on that of the previous year.

SCARLET FEVER.

The total deaths for the year were twelve. This shews a diminution of more than sixty per cent. on the mortality of 1877. Leicester may be congratulated on this comparative immunity from the disease, especially when we consider the great ravages it committed during 1878 in Birmingham, Sheffield, Oldham, Liverpool, Sunderland, and Newcastle, where Scarlet Fever shewed an epidemic and very fatal prevalence.

FEVER HOSPITAL.

No sanitary organisation is complete without the provision of an hospital for the thorough isolation and treatment of infective fevers in all classes for the general protection of the population. For the successful limitation, or rapid stamping out of infectious diseases, it is very important that those first affected be removed at the earliest opportunity from the midst of their neighbours who, in nearly every instance, consist of the lowest classes of a community. The ignorance, filthy habits, and over-crowding met with amongst some of these

people favour the propagation and facilitate the dissemination of contagion of any kind. In nine cases out of ten, epidemics are imported, fostered, and subsequently spread amongst the inhabitants of a town by its poorer classes who, it will be observed, dwell under the very conditions where the Sanitary Authority can enforce the removal of the infected, the means for the isolation of the sick in their habitations being at most quite imperfect. To gain early information of an outbreak of infectious disease is the most important point of all. I am glad that the Sanitary Committee are fully alive to this fact; and it is to be hoped that they will be successful in the effort they are now making to procure such powers from the Legislature as will bring under their immediate notice the existence of any fresh importation of contagion occurring within their Borough. The possession of these powers affords the only reliable means whereby our present defences against the spread of epidemic diseases can be materially strengthened and rendered more effective. The authorities of Bolton, Greenock, Nottingham, Jarrow, and Burton-on-Trent have already had this power conferred upon them; and many other towns, besides Leicester, are now seeking powers for the compulsory notification of their infectious diseases. Local bills have been lodged for promotion in Parliament this coming session by the Sanitary Authorities of Warrington, Exeter, South Shields, Blackpool, and Derby, each one of which contains clauses with the same object.

The total number of patients received into the hospital, during 1878, was seventy-eight. The address, age, sex, disease, and result of treatment of each of these patients are here given.

Summary of Cases admitted into the Borough Hospital suffering from Infectious Disease, from 2nd January to 31st December, 1878.

No.	Sex.	Age.	Residence.	Admitted to Hosp.	Dischd. from Hosp.	Character of Disease.	Result.	Observations.
1	F.	21	48, London Road	Jan.	Feb. 9	Scarlet Fever	Recovered	
2	F.	4	Union Workhouse	„ 2	„ 23	„ „	„	
3	F.	10	„ „	„ 4	„ 23	„ „	„	
4	F.	3	„ „	„ 4	„ 23	„ „	„	
5	M.	6	„ „	„ 7	Mar. 9	„ „	„	
6	F.	7	„ „	„ 7	Feb. 23	„ „	„	
7	F.	7	26, Porter Street	„ 8	„ 23	„ „	„	Very severe.
8	F.	12	Union Workhouse	„ 8	„ 23	„ „	„	
9	F.	4	„ „	„ 9	„ 23	„ „	„	
10	F.	14	1, Gold Street	„ 10	„ 24	„ „	„	
11	M.	6	Union Workhouse	„ 11	„ 24	„ „	„	
12	M.	25	Newby Street	„ 12	Jan. 29	Erysipelas	„	
13	M.	4	Union Workhouse	„ 16	Mar. 9	Scarlet Fever	„	
14	M.	14	10, Gresham Street	„ 16	„ 2	„ „	„	
15	M.	4	Union Workhouse	„ 16	„ 9	„ „	„	
16	M.	12	„ „	„ 16	„ 9	„ „	„	
17	F.	3	„ „	„ 19	„ 9	„ „	„	
18	F.	12	„ „	„ 19	„ 9	„ „	„	
19	M.	27	Cranbourne Street	„ 22	Feb. 11	Erysipelas	„	
20	M.	2	Union Workhouse	„ 23	Mar. 7	Scarlet Fever	Died 3.15 a.m.	
21	M.	44	30, Bedford Street	Feb. 5	„ 9	Erysipelas	Recovered	
22	M.	7	16, Gravel Street	„ 6	Feb. 18	„	„	
23	F.	51	Buckingham Street	„ 11	Mar. 1	„	„	
24	F.	14	Southfields	„ 19	April 9	Scarlet Fever	„	
25	F.	4	Union Workhouse	„ 22	„ 9	„ „	„	
26	M.	37	Sandiacre Street	Mar. 5	Mar. 25	Erysipelas	„	
27	F.	7	Union Workhouse	„ 6	Apl. 25	Scarlet Fever	„	
28	M.	49	Burgess Street	„ 26	Mar. 31	Erysipelas	Died 2.0 p.m.	In a dying state on admission.
29	M.	3	Palmerston Street	April 8	May 31	Scarlet Fever	Recovered	

No.	Sex.	Age.	Residence.	Admitted to Hosp.	Dischd. from Hosp.	Character of Disease.	Result.	Observations.
30	F.	15	Gordon Street	Apl. 15	May 27	Scarlet Fever	Recovered	
31	M.	3	Thomas Street	„ 21	June 3	„ „	„	
32	F.	6	13, Thomas Street	May 30	July 14	„ „	„	
33	F.	2	„ „ „	„ 30	June 1	„ „	Died 10.0 a.m.	Malignant case.
34	F.	3	Abbey Street	June 3	Aug. 17	Small Pox	Recovered	Confluent; unvaccinated.
35	M.	10	2, Abbey Street	„ 4	„ 3	„ „	„	Confluent; two slight marks
36	F.	13	Abbey Street	„ 4	„ 17	„ „	„	Confluent; unvaccinated.
37	M.	38	Union Workhouse	„ 4	„ 3	„ „	„	Confluent; vaccinated; 1 slight mark.
38	M.	3	Gavin's Yard	„ 5	June 8	„ „	Died 3.0 a.m.	Confluent; unvaccinated.
39	M.	6	19, Humberstone Rd.	„ 5	July 20	Scarlet Fever	Recovered	
40	F.	3	„ „ „	„ 8	„ 20	„ „	„	
41	M.	6	13, Thomas Street	„ 13	Aug 20	„ „	„	Severe.
42	M.	6	Abbey Street	„ 13	„ 17	Small Pox	„	Unvaccinated; confluent in type
43	M.	9	„ „	„ 13	„ 2	„ „	„	One good mark; mild case.
44	F.	3	„ „	„ 15	„ 3	„ „	„	Two imperfect marks; mild case.
45	F.	8	4, Charnwood Street	July 9	Sept. 2	Scarlet Fever	„	Very severe.
46	F.	4	Thomas Street	„ 11	„ 15	„ „	„	Malignant.
47	F.	3	Swaffham Street	„ 11	Aug. 31	„ „	„	
48	M.	7	Metcalf Street	„ 16	Sep. 14	„ „	„	Very severe.
49	M.	4	Charnwood Street	„ 21	„ 2	„ „	„	
50	M.	8	„ „	„ 22	„ 14	„ „	„	
51	F.	44	Brunswick Place	Aug. 7	„ 14	Erysipelas	„	
52	F.	13	Freeschool Lane	„ 10	„ 28	Scarlet Fever	„	
53	F.	50	Sparkenhoe Street	„ 12	Aug. 26	Erysipelas	„	
54	F.	16	Leamington Street	„ 29	Oct. 5	„	„	
55	F.	52	Underhill Street	Sep. 9	Sep. 28	„	„	
56	F.	5	Sherrard Street	„ 18	Oct. 30	Scarlet Fever	„	
57	M.	53	Porter Street	„ 21	„ 19	Erysipelas	„	Sent to the Infirmary for operation.
58	M.	46	Charnwood Street	Oct. 4	„ 26	„	„	
59	M.	14	Crafton Street	„ 9	Nov. 21	Scarlatina		This case was suffering from symptoms of sore throat, &c., and it was thought advisable to remove her from the School. The case did not prove to be Scarlet Fever.
60	F.	17	Wyggeston's Boys' School	Nov. 2	„ 11	Pseudo-Scarlatina	„	

No.	Sex.	Age.	Residence.	Admitted to Hosp.	Dischd. from Hosp.	Character of Disease.	Result.	Observations.
61	M.	2½	Dannett Street	Nov. 12	Dec. 24	Scarlatina	Recovered	
62	F.	3½	„ „	„ 12	„ 24	„	„	
63	F.	19	Belgrave	„ 22		Typhoid and Scarlet Fever	Convalescent	
64	M.	9	The Infirmary	„ 28		Scarlet Fever	Recovered	
65	F.	4	Church Gate	„ 25		„ „	„	
66	F.	45	7, Porter Street	„ 30		Erysipelas	„	
67	F.	15	Welford Road	Dec. 3		Scarlet Fever	„	
68	M.	3	The Infirmary	„ 4	Dec. 9	„ „	Died	Died from the effects of burn received at his own home during a temporary absence of the mother.
69	F.	2	95, Charnwood Street	„ 4		„ „	Convalescent	
70	M.	1	„ „ „	„ 4	Dec. 18	„ „	Died	
71	M.	8	The Infirmary	„ 18		Hip Disease	Recovered	This case was sent in as suffering from Scarlet Fever. He was not, however, upon admittance suffering from a single symptom of this disease.
72	F.	60	Navigation Street	„ 18		Erysipelas	„	
73	F.	45		„ 20		„	„	
74	M.	5	Brook Street	„ 23		Scarlet Fever	„	
75	F.	7	Upper Conduit St.	„ 24		„ „	„	
76	F.	3	Brook Street	„ 25		„ „	„	
77	M.	84	Union Workhouse	„ 28		Erysipelas	„	
78	M.	10	Charnwood Street	„ 31		„	„	

DIPHTHERIA.

Towards the end of 1878, England sustained a great national bereavement by the death of the Princess Alice from this disease. It derives its name from the Greek word *Diphther*, a skin or membrane, from the fact that in the course of the malady a greyish white membranous substance exudes from and adheres to the membrane of the throat passages. The contagium of the disease is contained in this membrane, in the shreds of it which become detached in coughing, and in the air breathed out by the patient. The attendants on such patients run great risk of becoming infected through inhaling some of the morbid matters thus thrown off into the air of the sick room. It may here be interesting to take a cursory glance at the history of the disease. About 1816, Diphtheria appeared as a destructive epidemic in the town of Tours, in France. After prevailing for about half a century in an epidemic form in various parts of France, it was at last transported to England in 1856, and for five years committed extensive ravages throughout the country and gave rise to great fatality. From 1856 to 1876, 81,361 fatal cases of Diphtheria were registered in England. In 1859 the disease reached its highest point of epidemic prevalence and fatality, when as many as 10,184 deaths were registered from it alone. The least fatality was experienced in 1872, when only 2,152 deaths from Diphtheria were recorded in England. It has continued more or less prevalent in different parts of the country up to the present time. Children are the chief victims, but adults are by no means exempt, as they frequently take it from the children. Diphtheria prevalence, unlike most other zymotic diseases, appears to be independent of climatic or local influences, and attacks indifferently the inhabitants of town or country. Social position is also disregarded, for the disease proves very fatal to the children of the poor, and our experiences of last year shew that the complaint loses none of its virulence when attacking those of the highest grades of our nobility.

Though the disease has been endemic in Leicester for the last fifteen years, the fatality arising from it has never attained a high degree, and, during 1878, the number of deaths only amounted to five, which was less than in any of the five previous years.

WHOOPING-COUGH.

From the beginning to the close of last year this disease prevailed in an epidemic form throughout the town. With the exception of diarrhœa, more deaths resulted from it than from any other zymotic, the total deaths registered being 82, or 3·3 per cent. of the total number of deaths from all causes, or 17·1 per cent. of the total deaths from zymotic causes. Of these eighty-two fatal cases, thirty-six died during the first quarter of the year, twenty-four in the second, eight in the third, and fourteen in the fourth; the disease was therefore least fatal when diarrhœa was most prevalent. Whooping-cough, like diarrhœa, is essentially a zymotic disease of infancy and early childhood, as sixty-eight or eighty-three per cent. of the deaths occurred amongst children under three years of age. The malady is not in itself a fatal one for death results, in most instances, from the complications which arise in the course of the disease,—the most dangerous of which are bronchitis, inflammation of the lungs, and convulsions. For life to be preserved, these complications require the utmost care and vigilance on the part of those who nurse the little sufferers. From the list of deaths before me it would appear that fully seventy-six per cent. were children of the artizan classes who, unfortunately are but too often unable, through dire necessity, to bestow that degree of watchfulness and attention which all complicated cases of this affection urgently demand.

CONTINUED FEVER.

During the past year the total deaths from this disease were thirty-one. The deaths in 1877 were twenty, but this fatality was, for Leicester, exceptionally small. The number of fatal cases in last year's returns, although an increase upon that of the previous one, nevertheless shewed a marked improvement upon the typhoid fatality experienced in many of the years prior to 1877. The annexed table affords evidence of this decline.

TABLE IV.

Year.	Population.	Deaths from Typhoid Fever.	Deaths from Diarrhœa.	Total Deaths.	Ratio of Typhoid to Diarrhœal Deaths.
1853	62,164	104	138	242	1:1·32
1854	62,925	101	150	251	1:1·48
1855	63,686	54	113	167	1:2·09
1856	64,447	34	115	149	1:3·38
1857	65,208	116	202	318	1:1·74
1858	65,969	92	120	212	1:1·30
1859	66,730	38	104	142	1:2·73
1860	68,056	11	56	67	1:5·09
1861	68,257	61	160	221	1:2·62
1862	68,797	49	99	148	1:2·02
1863	72,130	51	170	221	1:3·33
1864	78,337	37	180	217	1:4·86
1865	80,500	56	226	282	1:4·03
1866	83,750	53	147	200	1:2·77
1867	86,000	49	209	258	1:4·26
1868	90,000	63	349	412	1:5·54
1869	91,500	57	272	329	1:4·77
1870	95,083	52	240	292	1:4·61
1871	97,500	65	303	368	1:4·66
1872	100,829	64	305	369	1:4·68
1873	102,515	55	314	369	1:5·70
1874	106,202	48	257	305	1:5·35
1875	111,000	64	308	372	1:4·81
1876	113,581	43	263	306	1:6·11
1877	117,461	20	185	205	1:9·25
1878	121,473	31	302	333	1:9·74
	Total ...	1,468	5,287	6,755	1:3·60

I shewed in my last Report that the seasonal conditions most favouring the development and spread of Diarrhœa were alike promotive of Typhoid Fever prevalence and fatality. The atmospheric influences of 1878 gave rise, as will be subsequently seen, to a high diarrhœal mortality; a rise was observed to have taken place in the deaths from Typhoid Fever, but the mortality was less, and its ratio to the diarrhœal fatality more favourably disproportionate, than for many years previous to 1877.

In reviewing the deaths and mortality from Fever, experienced for some years past in some English towns, Leicester is found to present not only a comparative immunity from this disease, but also a continuous and marked improvement in the fatality recorded from it. This will at once become evident upon perusal of the subjoined Table.

TABLE V.

DEATHS AND MORTALITY FROM FEVER IN 17 LARGE TOWNS.*

BOROUGHS.	DEATHS from FEVER in 52 or 53 Weeks in each year.							Anuual Rate of Mortality per 1000.		
	1870.	1871.	1872.	1873.	1874.	1875.	1876.	5 Years 1870–74.	1875.	1876.
London	2053	1746	1340	1549	1554	1282	1176	·497	·372	·337
Portsmouth	93	75	121	100	105	100	70	·857	·815	·561
Norwich	71	39	55	61	34	44	29	·641	·531	·348
Bristol	120	116	83	106	84	94	89	·547	·479	·446
Wolverhampton ...	62	54	33	83	46	37	25	·808	·516	·345
Birmingham	233	184	188	205	199	196	140	·577	·535	·377
Leicester	**50**	**76**	**70**	**63**	**56**	**63**	**42**	**·635**	**·574**	**·370**
Nottingham	116	106	77	70	59	73	43	·975	·791	·459
Liverpool	900	888	441	314	433	477	388	1·190	·924	·744
Manchester	465	377	248	288	215	208	243	·904	·583	·679
Salford	131	85	86	88	124	111	75	·805	·818	·481
Bradford	194	134	133	128	106	81	73	·916	·481	**·420**
Leeds	339	331	295	210	205	140	177	1·035	·491	·607
Sheffield	340	221	242	238	190	322	248	·992	1·202	·902
Hull	117	105	171	122	170	108	76	1·096	·806	·555
Sunderland	58	221	106	53	70	46	61	1·013	·433	·563
Newcastle-on-Tyne	133	99	84	111	116	93	74	·834	·676	·529

* Thirty-ninth Report of the Registrar-General.

The decline shewn in the above table, and its continued subsidence witnessed in 1878, when the weather conditions were most favourable for the production of the disease, afford the highest testimony to the steady and protracted efforts of the Sanitary Authorities of the town. The following brief *résumé* of some of the sanitary work done in the Borough since 1872 embodies the alterations which have been chiefly instrumental in securing the continued reduction in the death-rate from Continued Fever.

	Number in Borough, May 1st, 1872.	Number in Borough, Dec. 31st, 1878.
Privy Cesspools ...	4,297	1,100
Privies	6,309	1,500
Water Closets ...	5,090	7,476
Ash Pits...	3,660	7,388
Pails	0	5,040

Surface-Wells Closed	1875.	1876.	1877.	1878.
From 25th June, 1875—	35	87	33	70

In addition to the above, 245 samples of well-water were analysed, but not condemned. Few of the Urban Sanitary Authorities throughout England could, I venture to say, bring forward better evidence of sanitary activity than the figures, quoted above, indicate.

When treating of Typhoid Fever in my report for 1877 (page 54), I drew attention to the following facts:

1st. The death registers for the last quarter of a century shewed that in nineteen of the years, a rise or fall in Typhoid fatality was accompanied by an increase or decline in the deaths from Diarrhœa, which afforded strong proof that the conditions most favourable for the development and spread of the former disease were more or less similar in their nature to those that gave rise to the latter affection.

2nd. Both diseases, with but few exceptions, prevailed during the same season of the year.

3rd. The districts of the town "unhealthy" from each disease were enclosed within similar boundaries.

The above facts led me to express an opinion—"That many of the cases of infantile Diarrhœa were but modified forms of Typhoid

Fever." My further experiences of each disease, gathered during last year, have fully confirmed me in this conviction. The distribution of the deaths from Typhoid Fever and Diarrhœa once more agreed as regards boundaries; and, the increase in diarrhœal fatality was accompanied with a higher death-rate from Typhoid Fever. On looking over the death registers I find that the Town, during the first and second quarters of the year under notice, enjoyed an exceptional immunity from Typhoid Fever, only three deaths resulting from it in the former and four in the latter period.

During the second week of the summer quarter a sudden prevalence of the disease was noticed in certain districts of the Town. The reported cases increased in number during August and the early part of September, and seemed to culminate in the third week of the latter month, as many as four deaths occurring from the disease during this week. Twelve deaths were, in all, recorded from Typhoid Fever during the summer quarter, shewing an increase of 400 per cent. on the fatality of the first quarter, and 300 per cent. on that of the second. On inspection of the houses where these deaths occurred, no defect was discovered in the ordinary sanitary arrangements of the dwellings. The air was, in all these instances, the only possible medium which could have conveyed the infection; and, judging from the suddenly increased prevalence of the disease in the early part of the quarter, the contamination of the atmosphere must have been extreme in degree, soon effected, and derived from multiplied sources.

Now, on looking over the *ages* of the twelve fatal cases, I find that only two of them were children, one of these being just under three years, and the other between four and five years of age. *No infant or child under two years died from the disease.* In other words, that section of the population, the most frail under ordinary disease, the most susceptible to all the more distinctive contagia, and composed, as it is, of the most sensitive indicators of atmospheric impurities of any kind, is represented as having escaped altogether a fatality evidently dependent upon a specific contamination of the surrounding atmosphere. Thresholds, ever open to every disease-inducing influence, were here closed and, we are given to believe, successfully resisted the entrance of one of the most subtle and potent of specific contagia.

DIARRHŒA.

The death-rate from this disease, during 1878, was very high: 5 deaths were registered in the first quarter, 14 in the second, 266 in the third, and 17 in the fourth, shewing a total of 302. My remarks will be confined to the mortality sustained from this disease during the period of epidemic prevalence, viz., the third, or summer quarter of the year.

On referring back to Plate III., on which are represented, by means of columns, the Zymotic relationships for the summer quarter of the 20 large English towns, it will be observed of the column for Leicester—

1st. That it reaches, with but two exceptions, a higher limit than any other town.

2nd. That the portion of it representing the mortality from Zymotic disease, other than Diarrhœa, is small, and bears most favourable comparison with the other towns.

3rd. That its length is mainly due to diarrhœal fatality, which here surpasses that of all the others, Hull alone excepted.

Again, when compared with the diarrhœal rates of fifty other English towns, that of Leicester is found to exceed any of them.

ANNUAL DEATH-RATE FROM DIARRHŒA IN ENGLAND IN 51 LARGE TOWNS, DURING THE THIRD QUARTER OF THE YEAR 1878.

Towns.	Annual Rate per 1000.	Towns.	Annual Rate per 1000.	Towns.	Annual Rate per 1000.
Exeter	3·1	Middlesborough ...	4·9	Cambridge	5·0
Devonport	2·9	South Shields	3·6	Colchester	2·1
Bath	1·5	Gateshead	4·5	Ipswich	7·1
Cheltenham	1·7	Tynemouth	5·5	Yarmouth	5·1
Shrewsbury	2·0	Carlisle	3·1	Stockport	5·5
Stoke-on-Trent ...	3·3	Newport	3·9	Macclesfield	2·5
Walsall	2·7	Cardiff	3·0	Chester	1·2
West Bromwich ...	2·3	Merthyr Tydfil ...	0·3	Birkenhead	2·5
Dudley	2·7	Swansea	2·1	St. Helens	8·1
Worcester	4·4	Chatham	1·3	Wigan	6·4
Coventry	4·1	Maidstone	3·4	Bolton	4·8
Lincoln	6·3	Dover	2·3	Bury	3·2
Derby	3·6	Hastings	1·6	Ashton-under-Lyne	3·3
Barrow-in-Furness	4·5	Southampton	1·9	Rochdale	2·4
Huddersfield	2·3	Reading	2·4	Blackburn	4·8
Halifax	1·3	Oxford	4·1	Preston	7·8
York	4·9	Northampton	7.6	**Leicester ... ...**	**8·7**

This prominent position, which the Leicester death-rate occupies amongst those of other communities, has now, with but slight variation, been maintained for four consecutive years. In a subsequent chapter I shall endeavour also to show that the insanitary influences prevalent *during this quarter* proved so destructive to infantile constitution and life as to place the town highest but one in the *yearly averages* of infantile mortality.

CHAPTER I.

In accordance with the request of the Sanitary Committee, I made a house to house visitation to all dwellings where deaths occurred from the disease during last summer quarter and the last few days in June. The result of the enquiry is given below, and in order that a comparison may be drawn with my visitation in 1877, the details are much the same as were then used. Nine deaths were registered from Diarrhœa during the last week in June, so that the total number arising from the epidemic amounted to 275. Nine of these cases were adults, whose ages were 73, 79, 83, 34, 64, 66, 31, 84, and 86 years respectively; further enquiry was not made concerning them. Out of the 266 infantile cases there were 28 of whom I could gain no information, the parents having either changed their residence or left the town. There were also 10 illegitimate children, about whose fathers no reliable information could be obtained: particulars of the fathers are therefore given in only 228 instances.

1st. The sex and ages at death of the 266 infantile cases were as follow:—

Under 1 year	116	males	... ...	126	females
1 year and under 2 years	12	,,	... ...	11	,,
2 years and under 3 years	1	,,	... ...	0	,,

From this it will appear that 242 or 88 per cent. of the children had not completed one year of life.

2nd. Health of the children when born.

182 were healthy
56 ,, delicate

In other words 76·5 per cent. were healthy children at the time of birth.

3rd. Manner of feeding adopted by the mothers.

165 of the children were suckled
56 „ „ „ bottle fed
17 „ „ „ fed upon a mixed diet, *i.e.*, the breast milk supplemented with either arrowroot, sago, or corn flour, &c.

I do not here intend to comment upon these figures further than to remark that they offer a good refutation to the theory that "hand-feeding" is the chief factor in the causation of the disease.

Duration of illness.

In 5 cases death resulted after 1 day's illness.
„ 12 „ „ „ „ 2 „ „
„ 22 „ „ „ „ 3 „ „
„ 35 „ „ „ „ 4 „ „
„ 7 „ „ „ „ 5 „ „
„ 9 „ „ „ „ 6 „ „
„ 65 „ „ „ „ 7 „ „
„ 2 „ „ „ „ 8 „ „
„ 6 „ „ „ „ 9 „ „
„ 2 „ „ „ „ 10 „ „
„ 3 „ „ „ „ 12 „ „
„ 41 „ „ „ „ 14 „ „
„ 22 „ „ „ „ 21 „ „
„ 3 „ „ „ „ 28 „ „
„ 4 „ „ „ „ 35 „ „

The average period of sickness was equal to nine days and two hours.

The *Health* of the parents.

(a) Of the 238 mothers,
213 were in good health.
25 „ delicate „

(b) Of the 228 fathers,
219 were in good health.
8 „ delicate „
1 was consumptive.

These figures, like those under the same heading for 1877, disclose the fact that the disease is in no way dependent upon the degenerate constitutions of the parents.

The *Ages* of the parents.

(a) Of the 238 mothers,

5 were under 20 years.
53 „ over 20 „ and under 25 years.
92 „ „ 25 „ „ „ 30 „
70 „ between 30 and 40 years.
18 „ over 40 years.

(b) Of the 228 fathers,

1 was under 20 years.
35 were over 20 „ and under 25 years.
88 „ „ 25 „ „ „ 30 „
76 „ between 30 and 40 years.
28 „ over 40 years.

Early marriages can therefore, as far as Leicester is concerned, have exercised no influence in the question of diarrhœa causation.

188 or 79 per cent. of the mothers did *not* go out to work, and the remaining 50 or 21 per cent. were employed in various branches of labour which necessitated their daily absence from home. This latter per centage is very much below what is found amongst the manufacturing towns of Yorkshire and Lancashire, and would go to prove that, whatever may be the experiences of other towns, maternal neglect does not account for the high infantile death-rate in Leicester during the summer of last year.

The Sanitary Requirements of the Premises where the Deaths occurred.

Water Supply.—193 or 81·1 per cent. of the houses were supplied with Waterworks water, and the remaining 45 or 18·9 per cent. were provided with pump water from surface wells. The water of many of these wells had been analysed and pronounced potable. The water supplied to the town by the Waterworks Company is a pure upland water; and an analysis of it in the month of August, expressed in pats per 100,000, gave the following result:

Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.	Ammonia.	Nitrogen, as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contamination.	Chlorine.	Hardness.		
								Temporary.	Permanent.	Total.
26·32	·485	·075	·001	·005	·081	0	1·48	15·8	9·0	24·8

The Diarrhœa of Leicester is, therefore, clearly not dependent upon an impure wter supply.

CLOSET ACCOMMODATION.—100 or 42 per cent. of the houses were provided with water closets; 127 or 53·4 per cent. were provided with pails; and in only eleven instances were privies found. If a similar enquiry were instituted in most of the other large towns, I am of opinion that very few of them would be found so creditably provided, and free from filth and its receptacles, as this return proves to be the case in Leicester.

YARD SPACE.—220 or 92·5 per cent. of the houses had large and open yards attached to them. 17 or 7·1 per cent. had rather confined yards, and in one instance there was no yard.

Looking broadly at the results of this enquiry, it must be evident to unprejudiced observers that the physical organisation of the children at birth, their subsequent mode of alimentation, their social relationships, and their domiciliary surroundings, all fail to account for the inordinate diarrhœal prevalence and fatality experienced amongst the infantile population of the town. We must look for the cause in an influence much wider in its operation; for, as I shall subsequently show, all ages of the population were simultaneously affected with the disease, and its prevalence was proportionately greater amongst youth and grown-up people than infant children.

CHAPTER II.*

Of the whole class of Zymotic diseases, Diarrhœa is the one which demands the greatest effort to be put forth towards an investigation of its causes. Why this disease should possess such prior claim upon our attention depends upon the following reasons:

1st. Amongst urban populations, if an average be taken for a number of years of the deaths which each Zymotic disease has induced, it will be found that the number accredited to Diarrhœa considerably exceeds that of any other of this class of maladies.

2nd. The majority of the victims are children.

3rd. The wide difference of opinion that is observed to exist amongst Health Officers with respect to its mode of causation, and which in turn gives rise to hesitancy and apathy on the part of the Sanitary Authorities throughout the country in their adoption of measures for the mitigation of the disease.

4th. The disease arises from causes pre-eminently under control.

Leicester, as most of you are aware, is one of the English towns which have for some years enjoyed unenviable notoriety for a high Diarrhœa death-rate.

Early in the summer of last year the Sanitary Committee of this town, with a view to lessen, if possible, the fatality from the disease, determined upon supplying medicine *gratis* to the artizan and poorer classes. In the adoption of this measure the Committee were chiefly influenced by the good accounts received from Manchester, where a similar line of action was resorted to. On the 10th July I directed that the addresses and ages of all the persons for whom medicine was given should be entered, so that I might ascertain the ages of those affected and the districts where the disease was most prevalent. The following is an analysis of the entries from the 10th July to September 30th.

Total number of cases affected, 3,318.

1st. Of these 3,318 cases, 1,390 were children under five years, and 1,928 adults and children over five years; thus shewing that the disease was more prevalent amongst adults than children.

* The two following chapters contain the substance of a Paper, on "Autumnal Diarrhœa," I read before the Epidemiological Society, London, on the 1st January, 1879.

2nd. The applications from houses where more than one was affected with the complaint were 481 in number, viz.:

Houses having	7	persons	suffering	from	diarrhœa,		1
,, ,,	6	,,	,,	,,	,,		3
,, ,,	5	,,	,,	,,	,,		8
,, ,,	4	,,	,,	,,	,,		22
,, ,,	2 or 3	,,	,,	,,	,,		220

3rd. Houses having the parents affected with the children, 227.

The history of these multiple cases was, almost without exception, that first one became affected with the disease and that the others subsequently suffered from it.

During July, and up to August 9th, I was engaged in rather lengthened microscopic examinations of the bowel discharges from infants and adults, and during this time I suffered from repeated attacks of the disease. These personal experiences, especially when taken in conjunction with the facts mentioned above under paragraphs 2 and 3, have convinced me that "summer" Diarrhœa is *contagious*, and that the chief vehicles of the poison in the above instances were the ejecta from the bowels of previously infected persons.

A microscopic examination of the bowel discharges of infants, children, and adults affected with the disease, revealed the presence, in each case, of innumerable bacteria (bacterium termo and micrococcus). These organisms are the active agents in causing putrefaction in all liquids containing animal organic matter. The stools varied exceedingly in appearance, some being deeply tinged with bile, while others were of a pale clay colour; they were alkaline in reaction and most offensive in odour. I also found bacteria in the vomited matters of children affected with Diarrhœa.

Artificial Feeding.—The first theory I shall notice that is advanced by many as the chief cause of the disease is *Artificial Feeding*. We all know that this habit is very prevalent amongst mothers in town populations, and we are all equally aware of the fact that its adoption tends very materially to enfeeble the infantile organism, and so render it more unable to withstand any disease-inducing influence surrounding it. No member of the profession deprecates more strongly than I do the adoption by mothers of this unnatural custom, and I am fully satisfied that

much infantile mortality might be averted by its discontinuance. At the same time I think that the evils ascribed to artificial feeding are, just at present, very much over-estimated, and with respect to its being the principal cause of the Diarrhœa fatality of our large towns, I am of opinion that the facts to be gleaned from last year's epidemic by no means lend support to such an assumption. If we refer to the previous chapter we shall find that of the 238 deaths, about which full particulars could be obtained, no fewer than 165 or 69·3 per cent. were breast-fed.

In the infantile cases which occurred amongst my own patients, and to which I have previously referred as having bacteria in their vomit, most of them were breast-fed and had never from their birth received artificial food of any description whatever. Again, the development of last year's epidemic was sudden and contemporaneous over certain districts of Leicester, and THE DISEASE AFFECTED ALL AGES SIMULTANEOUSLY. This affords strong proof that the cause in operation was rapidly diffused through a medium common to these inhabited areas. NOTHING LIKE A LIMITATION OF THE DISEASE TO THE INFANTILE PORTION OF THE POPULATION WAS OBSERVED. The mortality arising from it was, as we have seen, almost entirely confined to infants, but this is not to be wondered at when we take into consideration the delicate constitutions of the victims.

A few facts relative to the diarrhœal mortality sustained in other towns during the summer quarter may not here be out of place.

The industries of Oldham and Bradford employ a greater percentage of female labour than most other manufacturing towns, and certainly much more than Leicester. Notwithstanding this, however, Oldham suffered the least fatality from the epidemic of any of the twenty large towns, and Bradford, with a surplus population of 64,000 over that of Leicester, sustained only 36 per cent., the actual mortality of the latter town. *A similar disparity is observed in the diarrhœal death-rates of towns engaged in similar branches of industry and employing much the same proportion of female operatives,—e.g.*, Halifax enjoyed a remarkable immunity from the disease, its diarrhœal rate for the summer quarter being only 1·3 per 1000; but for the same period the rate in Leeds was 6·6, in Preston 7·8, and no less than 8·1

in St. Helens. From my own personal knowledge, artificial feeding is carried on to an enormous extent in Halifax and Oldham, and if the disease mainly depended upon this custom one would be prepared to find both towns suffering from heavy yearly inflictions of diarrhœa, instead of this both places enjoy a remarkable immunity from the malady. To take another striking example, Bristol and Hull are both sea-port towns, and their employment of female labour bears but a small percentage to their populations. Bristol, however, was noted for its low diarrhœal death-rate, whilst Hull, during the same quarter, experienced a higher fatality from the disease than any other English town. In my notes of some cases of the disease that came under my care last summer, the following entries occur, amongst numerous infantile cases:

Case I. Engine driver, æt. 30 years, suddenly siezed with profuse diarrhœa, griping, and sickness; stools bilious, watery, and swarming with bacteria.

Case II. Bricklayer, æt. 29 years, of robust constitution, suffering from frequent purging, much griping, with sickness and tenesmus; motions contain innumerable bacteria and great numbers of crystals of triple phosphate; two of his children also suffering from the disease at the same time.

The number of adult cases thus notified by me amounted to 15; they were all over 25 years of age, and were affected with symptoms varying but little from those above described. Neither artificial feeding nor maternal neglect could account for the disease in these cases, and I think it UNREASONABLE TO ATTRIBUTE THE CAUSATION OF A DISEASE AFFECTING ALL AGES OF A POPULATION TO A CUSTOM THAT DOES NOT EVEN GENERALLY AFFECT ITS INFANTILE SECTION.

The other theories advanced as causes of Diarrhœa are, impure water, maternal neglect, want of cleanliness and ventilation.

From the previous chapter we find as regards the water supply to the houses where deaths occurred, that 193 or 81·1 per cent. were supplied with the Company's water and only 45 with pump water (18·9 per cent.). The Company's water is plentiful and the supply constant. Several analyses of the water during the summer shewed that it was of excellent quality. The disease, in Leicester, is therefore not

dependent upon bad water supply. The closet accommodation to the houses was also good; only 11 privies were met with, the remaining 227 habitations having either pails or water closets provided. The removal of ash-bin refuse is most efficiently carried out. These figures afford conclusive evidence that the disease, as far as Leicester is concerned, is neither dependent upon filthy conditions of its surface, nor due to any want of the ordinary sanitary requirements for external cleanliness.

A somewhat striking fact was also elicited during my enquiries into the particulars attending last year's epidemic. In the courts throughout Leicester and amongst their occupants, more filthy tenements, more squalor, less facilities for house ventilation, greater maternal slovenliness, and deeper degrees of poverty, are found to exist than in any other district or section of its general population. The mortality, however, occasioned by the disease amongst the progeny of these people was not found to exceed that experienced by the inhabitants of more open districts of the town; but, on the other hand, a somewhat remarkable fatality took place in some wide open streets, newly-built, and situate upon the extreme margin of the town.

All the evidence I have now laid before you, in discussing the generally accepted theories of the causation of Diarrhœa, tends to show that the ascribed causes fail to account for the wide variations in the mortality experienced each summer quarter in English towns.

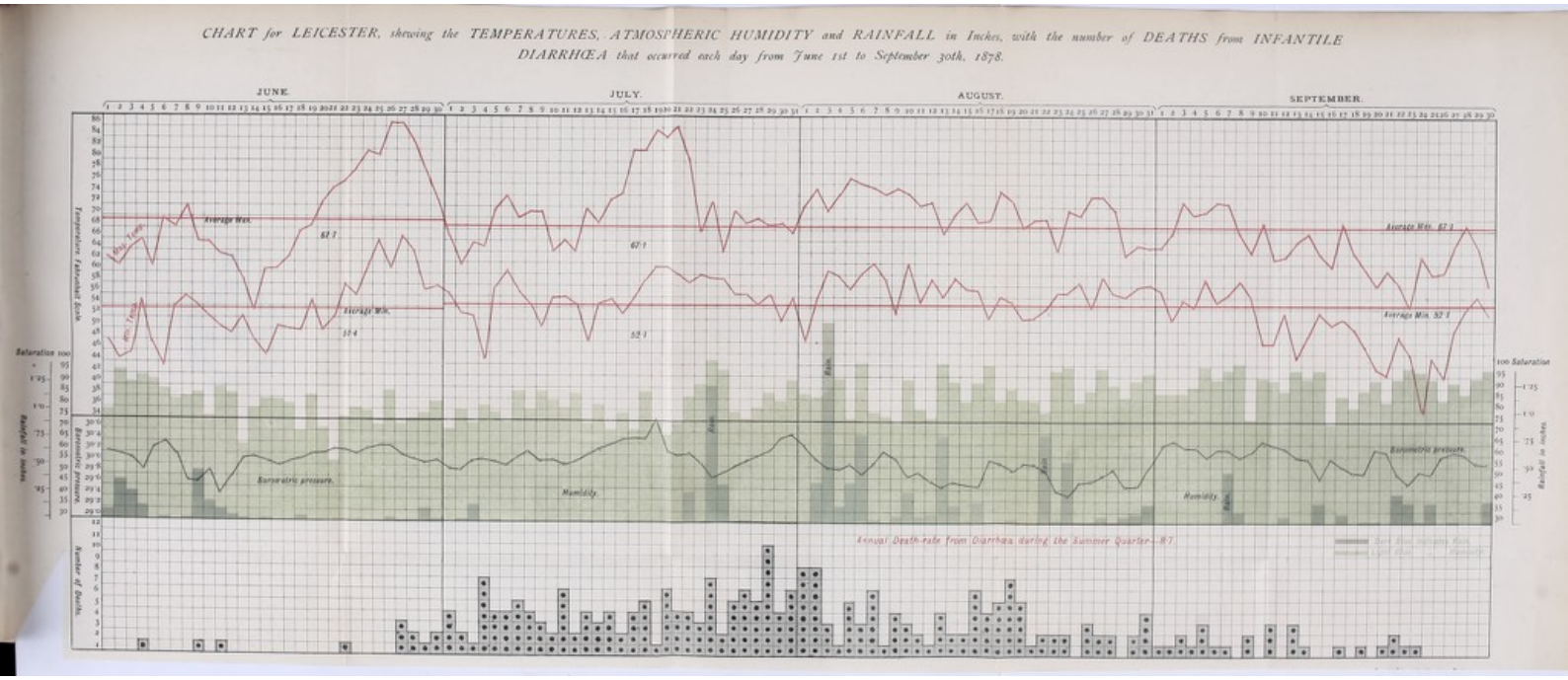
Meteorological Conditions.—Before entering upon this subject, I may state that I consider atmospheric conditions act only as *excitants* of the disease, and this only applies to localities where other conditions are met with that act powerfully as *predisposing* causes; for I feel assured that if we could discover any particular town or district, the sanitary machinery of which was in perfect working order, the vicissitudes of climate would there be found to be perfectly harmless in the production of Diarrhœa.

I have arrived at the following conclusions with respect to the weather conditions that seem to influence Diarrhœa mortality, after a careful tabulation of the meteorological conditions and Diarrhœa mortality experienced during the summer months of each year since 1866. The prevalence of the disease appears to be governed by three

weather conditions, viz.: temperature, atmospheric humidity, and rainfall, and these follow in the order of their importance. The combination that seems most potent for evil is high degrees of heat, great atmospheric dryness with little or no rainfall. This combination was experienced throughout July of 1868, and the Diarrhœa mortality was greater than has ever since been recorded. Very high temperatures prevailed during the months of May and June of the same year. The combination most unfavourable for the disease seems to be prevailing low mean temperatures ranging from 57° F. to 58°·5, in conjunction with high degrees of atmospheric saturation and more or less continuous rainfall. The least mortality (86 cases) was experienced in Leicester during a prevalence of these conditions in the summer quarter of 1866. From the charts of the previous twelve years I think this general law may be gathered: that a continuance for a week or ten days of a mean daily temperature of 59° or over, in conjunction with a scarcity of rainfall and low degrees of humidity, and occurring during any period from the twenty-fifth to the thirty-seventh week, is sufficient either to provoke the disease or increase its prevalence. A hot June month invariably hastens its appearance.

From the weather chart for Leicester, it will be seen that the diarrhœal epidemic of 1878 appeared in the town at a much earlier date, and was more suddenly severe, than in the previous year. This was, undoubtedly, owing to the intense heat and dry weather experienced during the latter part of the June month. The continuance of drought throughout the greater part of July, and the recurrence of very hot weather from the 17th to the 22nd of that month occasioned still greater prevalence of the disease and added considerably to the fatality. On reference to the chart for Oldham, it will be observed that the weather conditions in that town were very similar in character to those of Leicester, but the mortality in the former town was quite insignificant when compared with the sustained high rate in the latter place. To most minds, a careful comparison of these charts will afford convincing proof that the disparity here shewn to exist between these two *manufacturing* towns cannot depend upon relative excellence in the habits of the people. The marked difference in the deaths of both towns can only, in my opinion, be accounted for by the wider influences arising from differences of *site*. In topographical character, the site which Oldham occupies in

CHART for LEICESTER, shewing the TEMPERATURES, ATMOSPHERIC HUMIDITY and RAINFALL in Inches, with the number of DEATHS from INFANTILE DIARRHŒA that occurred each day from June 1st to September 30th, 1878.




ROYAL COLLEGE OF SURGEONS OF ENGLAND
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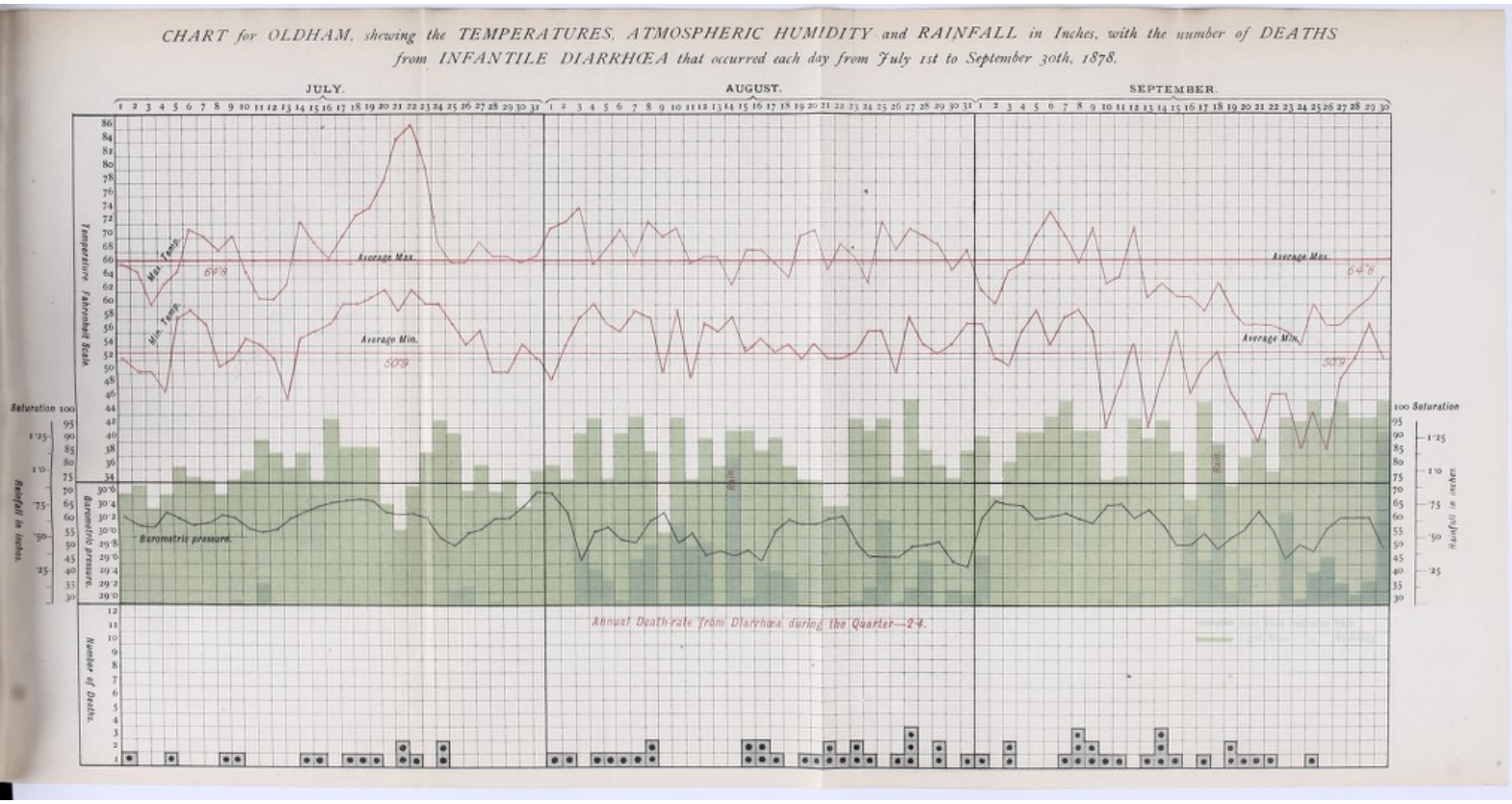
CHART for OLDHAM, shewing the TEMPERATURES, ATMOSPHERIC HUMIDITY and RAINFALL in Inches, with the number of DEATHS from INFANTILE DIARRHŒA that occurred each day from July 1st to September 30th, 1878.



no way resembles that of Leicester. The greater portion of Oldham is built on very hilly ground, which affords excellent natural facilities for outfall; and Dr. Sutton, the Medical Officer of Health for the Borough, informed me that stagnation is of extremely rare occurrence in any section of the sewers. On the other hand, a great part of Leicester is very flat, and some of the sewers of the low-lying areas are very liable to become silted. If reference be now made to the disease map, it will be observed that the incidence of the disease was proportionately greater in those localities of the town where this tendency to stagnation is most marked. In the subsequent pages I shall endeavour to show that the evils arising from this stagnation and filth accumulation in sewers are, in themselves, sufficient to account for the wide variations in diarrhœal fatality yearly observed among urban populations.

Subsoil Temperature.—Before entering upon the mode of causation of the disease, it is essential that I should briefly draw attention to the change of temperature invariably induced in the subsoil by the meteorological conditions experienced during the spring and summer quarters of the year. The sun is the principal source which imparts to the subsoil of our towns the heat which it possesses. From the vernal equinox, March 21st, until about June 22nd, the days gradually increase in length, and the heat which the soil receives from solar radiation during the days is, speaking generally, greater than it parts with during the nights. The immediate result is a gradual rise during the spring quarter in the temperature of the subsoil and the sewers embedded therein. The temperature in sewers when these are not sufficiently ventilated, and under ordinary conditions of weather, will be found to have risen from 52° or 54° F. in March to 59° or 62° by the end of June; and if hot, dry weather has prevailed during this latter month, much higher sewer temperatures may be registered at its close. A decided cooling of the sewers and subsoil of towns, as indicated by temperatures below 56°, will not be observed to take place, under ordinary conditions, until about September 25th., *i.e.*, until the period just before the daily receipts of heat from solar radiation begin to fall short of the nightly expenditures. The highest sewer temperature I have ever observed was 69.5° F.; this was taken

on the 10th July of the present year when the outer air temperature was 83·5°.

The air of an insufficiently ventilated system of sewers undergoes a daily range of temperature varying from 3° to 12° F. The greatest daily fluctuations take place in the air of main sewers; in these the lowest temperatures occur between 3 and 4 a.m., and the highest between 5 and 6 p.m. The temperature of the air in the sewers of a manufacturing town is never, at any given moment, uniform throughout the system, for, owing to the frequent receipts of heated water from factories and other sources, the temperature in the low-lying main culverts will be found throughout the day to be from 5° to 9° F. higher than that in the subsidiary sewers radiating from such culverts. An exactly opposite relationship with respect to these sewer temperatures will be found to exist during the greater part of the night, for then the temperature of the air in the main culverts is lower than in the tributary sewers. Too great importance cannot, in my opinion, be attached to this unceasing variation in the temperature of the air of town sewers. Owing to this variation, ascending aerial currents are established during the day *irrespective of the low specific gravities of some of the component gases*, and if, from defective construction or insufficient fall, any section of the main culverts retains excretal matters and becomes silted, the specific contaminations which such matters contain are thus carried into the remotest branch sewers, though these latter may extend to considerable distances and occupy much higher levels. Stagnation and deposition occurring in a main sewer will thus impart a common character to the air of all its confluents.

Now when temperatures of 56° F. and over are once established in sewers, putrid fermentation sets in, and the process goes on with a rapidity that is directly proportionate to the increase of temperature attained in the sewer. Sewers in this heated state afford the very conditions (heat, air, and moisture) for the rapid putrefaction of all the putrescible liquids and animal excreta that may be retained in them; for the air of a sewer, if not sufficiently ventilated, is always at the point of *complete saturation*.

Origin of the Disease.—My observations during the last eighteen months upon the microscopic organisms contained in

ordinary air and that of sewers, are much too numerous too mention; I will, therefore, only draw attention briefly to some of the results and the conclusions I have drawn therefrom.

1. The moist air in ill-ventilated and non-cleansing sewers, when the temperature of the latter is above 57° F., contains bacteria of the genera micrococcus and bacterium termo, the numbers present being in direct ratio to the increase of temperature from 57° to 69·5°, (the highest temperature observed.)

2. The same organisms are to be found in the confined air of cesspools, and here their numbers increase with the atmospheric temperature.

3. The trapping water of all gulley-grates and stench-traps, when connected with sewers of deposit, contains great numbers of both kinds of bacteria, derived in great measure from the air within.

4. During hot weather, and especially when conjoined with great atmospheric dryness, these organisms are given off from all liquids containing them, and are carried into the air in very large numbers by the ascensional force of evaporation. This fact can be easily demonstrated by covering any vessel containing a solution abounding in bacteria with a glass plate. The under surface of the plate becomes covered with watery vapour, which can be collected into drops by the addition of ether, and on subsequent examination discloses the presence of bacteria. These bacteria, as has been before stated, are the active agents in causing putrefaction in putrescible liquids and substances of animal organic origin, and their appearance in the air of sewers and close cess-pools is a sure indication that rapid putrefactive changes are going on in the excrementitious matters that may be retained in the former or collected in the latter.

5. In badly-sewered districts, milk will be found to be speedily infected with the above ferments; their presence may also be frequently recognised in the stale food of infants, if due care be employed in the collection.

6. The juices that exude from and adhere to the over-ripe fruit exposed in shops or hawked about in such districts will be found, with few exceptions, to contain numbers of bacteria (rods and spherules) moving-about amongst cells of the ordinary variety of fruit ferment.

7. The atmosphere of these districts during hot summer weather, when filtered, is always found to yield fungal elements, ranging in character from micrococcus to mycelial filaments. I have never detected the presence of bacteria in the air of the same localities during any day in April or May.

8. For the last two years the commencement of "summer" Diarrhœa in Leicester has been contemporaneous with the appearance, in large numbers, of bacteria in the air of some of its sewers.

The weather conditions of 1878 were more favourable than those of the previous year for the development, multiplication, escape, and subsequent atmospheric diffusion of these sewer organisms; and these conditions gave rise to a greater prevalence of the disease and a higher fatality.

In a previous part of this Report it was shewn that the above organisms were present, in great numbers, in the bowel discharges and vomited matters of patients affected with the complaint under consideration. I therefore consider that *(a)* Diarrhœa, as it effects both adults and infants during the summer months, owes its origin, in a great majority of instances, to the introduction of minute living organisms (bacteria) into the system by means of air or in food; and *(b)* the Disease depends upon putrefactive changes in the bowel contents, which changes are correlative to the development and multiplication of these microscopical organisms.

CHAPTER III.

Let us now look at a few facts relative to the past and present of other English towns, and ascertain to what degree their experiences lend corroboration to this view of the causation of the disease.

Some twenty-five years ago, very few towns possessed a complete system of drainage and the means provided for the removal of filth were very inefficient. The habitations of most provincial towns were, at that time, surrounded by heaps of filth and other refuse, which, being allowed to collect in large quantities in open vaults, &c., attracted public attention by a more or less continuous exhalation of offensive stenches arising from putrefaction. The close connection between a filth-contaminated atmosphere and Diarrhœa prevalence was, under these conditions, fully recognised, for it almost invariably happened that where high death-rates from the disease were experienced, there also were to be observed proportionate degrees of filth collected around the dwellings of those who had been affected. So frequently were both conditions found to co-exist that Dr. Simon, in his introductory Report to Dr. Greenhow's paper, gave special prominence to his conviction with respect to the cause of the disease. While referring to the very unequal prevalence of Diarrhœa met with in different towns, Dr. Simon says: "And any such distribution of diarrhœal disease as has just been noticed warrants a presumption—indeed, so far as I know, a practical certainty—that, *in the districts which suffer the high diarrhœal death-rates, the population either breathes or drinks a large amount of putrefying animal refuse.*"

All the towns formerly conspicuous for high diarrhœal death-rates have now adopted and carried out various schemes to secure the more rapid removal of their filth, and so prevent its undue accumulation in their midst. The construction of general systems of sewerage supplied the means whereby these towns were enabled in great measure to accomplish this, and in the majority of them, at the present time, the greatest bulk of their excretal matters is immediately discharged through multitudinous openings into the sewers beneath.

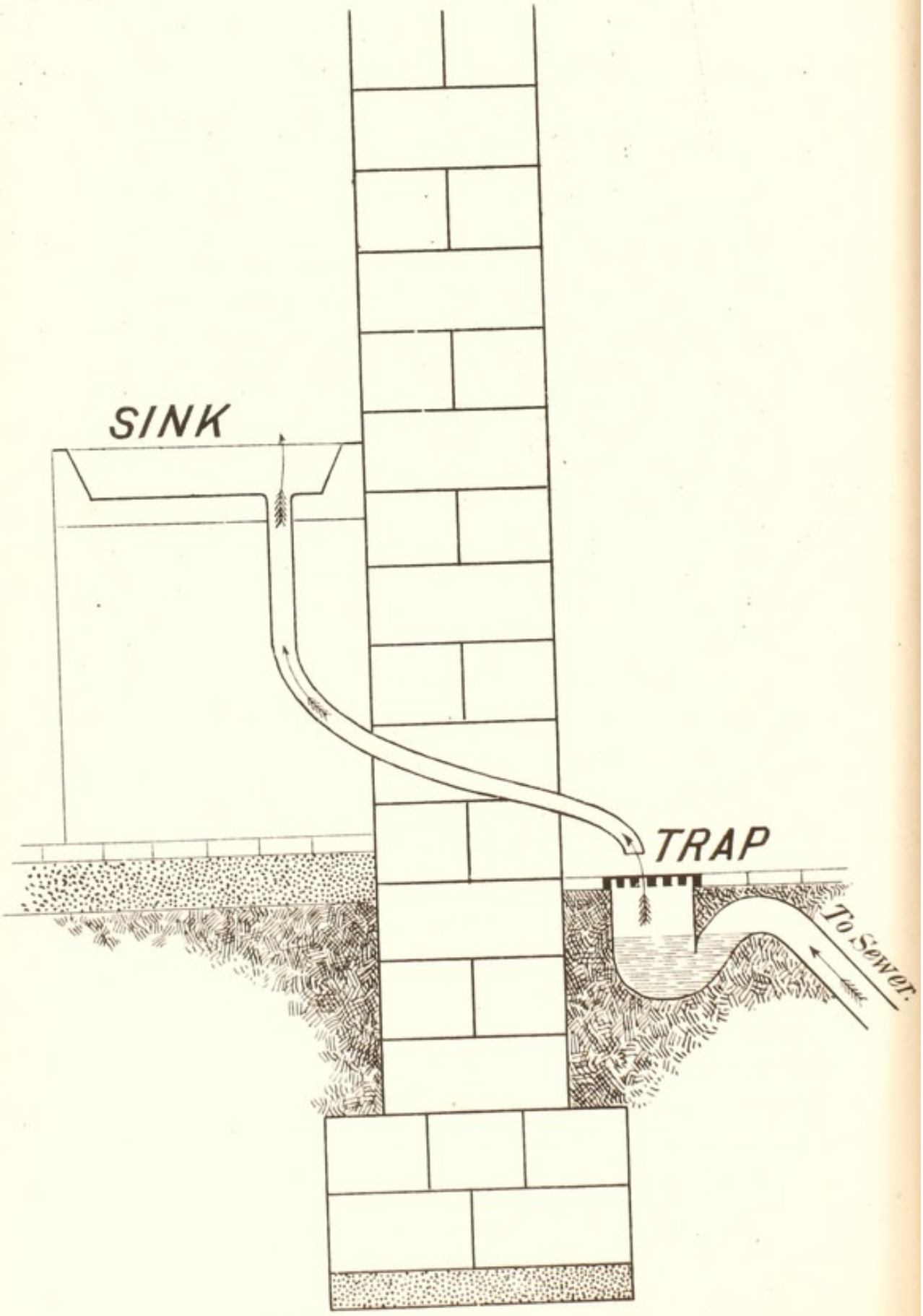
On looking over the diarrhœal death-rates, for last summer quarter, of seventy English towns, as given in the Quarterly Report of the Registrar General, it will be observed:

1st. That all those towns, *however varied their industries*, remarkable for *low* death-rates, have excellent natural facilities for outfall. If the advantages of site which these towns possess have been at all utilised in the construction of their sewers (and there is every reason to believe that such has been the case), the gradients are sufficient to bestow such a velocity on the sewage flow as either ensures the rapid conveyance and complete removal from beneath the inhabited areas of all the excretal matters daily received by the sewers, or, at most, permits of the least stagnation and retention of such matters during their passage through these channels. The towns occupying such fortunate sites are Plymouth, Bristol, Oldham, Chatham, Hastings, Southampton, Chester, Halifax, and Merthyr-Tydfil.

2nd. That all those towns, *however varied their industries*, remarkable for *high* death-rates occupy sites having a common character, viz.: each area is either uniformly, or in great part, FLAT. The facilities for outfall, which their position and surroundings command, are scanty in amount and insufficient to afford such gradients to the sewers as render them self-cleansing. Some of the towns occupying such unfortunate sites are Ipswich, Yarmouth, Leeds, Liverpool, Preston, Wigan, Northampton, Lincoln, St. Helens, Leicester, and Hull. After careful enquiry I find that considerable excretal accumulation, resulting from insufficient fall, does actually take place in some of the sewers beneath the sites of all these towns.

I have brought under your notice the fact that the subsoil of towns during the second quarter of the year is subject to a rise in temperature, and that, under ordinary seasonal changes, the soil at sewer depths reaches putrefactive temperatures towards the end of June or beginning of July. During the active putrefaction of the filth stored up in these under-ground cess-pools, the organisms giving rise to the process are thrown off in enormous numbers from the putrefying mass into the sewer air. The medium at present used to confine sewer gas, viz., water, fails to arrest the outward passage of these minute forms. The bacteria in the sewer air easily pass through the water in ordinary traps, and are lifted into the air by evaporation, and, if the weather conditions favour this latter process, a free communication is soon established between the sewer and the atmosphere

Diagram showing a mode of entrance into human habitations of the Germs of Zymotic Diseases.



around dwellings. The contamination of air by putrefying animal refuse is thus brought about with as great certainty, though in a less degree, as if the excretal matters were stored upon the surface and in close proximity to human habitations.

This view of the causation of Diarrhœa in our large towns is, in my opinion, the only one that affords a satisfactory solution to the wide variations of mortality observed amongst their populations. It is, moreover, the one most in harmony with the convictions of Dr. Simon, who may justly be regarded as one of the first Sanitarians of the day.

Before leaving this chapter I wish to draw attention to an arrangement frequently met with in household construction, which, in localities where the sewers are liable to become silted, contributes powerfully towards the spread of Diarrhœa and Typhoid Fever. The arrangement to which I refer is the position which the sinkstone pipe is made to occupy with respect to the outside trap placed over the sink drain. In the majority of houses, as at present constructed, the outside opening from the sink is *immediately over* the sink trap, and if the sink pipe be of lead the end of this is bent sharply downwards and the orifice thus brought still nearer the mouth of the trap. Some houses, by no means few in number, instead of a leaden sink pipe, have only a rough channel of brickwork provided for the discharge of the slops, and this passage, by frequent use, is soon much befouled with a coating of grease and other impurities. The outer openings to these brick channels are large and patulous, and formed by chipping an inch or two off the end of one of the bricks forming the out-side wall. These openings are also above and in immediate proximity to the sink trap. The annexed diagram will render my description more intelligible.

When a tube, in which is fixed a delicate fan suspended on needle points, is placed over the untrapped openings of sinkstones in the scullieries and back kitchens of houses where the above arrangement exists, a current of air (indicated by the revolutions of the fan) will, nearly always, be found to be passing through the sink pipe. The *velocity* of this current is directly proportionate to the difference between the temperature of the air within and that outside the

dwelling, and its *direction during the night* I have invariably found to be *from without inwards.*

I have already shewn that about the end of June active putrefaction is set up in sewers containing deposit through the rise in temperature the subsoil undergoes at sewer depths. At such seasons the air of these sewers is heavily charged with the products and agents of putrefaction, and the water contained in the traps connected with them requires but a short exposure to afford abundant evidence of impregnation having taken place from within. Traps with water thus contaminated differ in no respect from so many saucers partly filled with diluted sewage undergoing putrefaction, and, when the weather conditions are such as favour rapid evaporation, the air in the immediate neighbourhood of the traps becomes much impregnated with putrefactive elements (bacteria) derived from the dilute sewage contained in these appliances. This air, pregnant with bacteria and other organic impurities, is afterwards sucked into the interior of the houses by the current that is passing up the sink pipe. The air of houses is thus polluted, and all articles of food that may be stored in the sculleries and back kitchens become contaminated. In houses without cellars, very frequent use is made of the scullery shelves, during the heat of summer, to keep milk and other articles of food *cool*, and when these are inoculated, in the manner described, with the ferments of putrefaction, their ingestion gives rise to a train of symptoms similar in every respect to those so commonly observed to follow the eating of food in a putrid state, viz.: violent sickness, griping, tenesmus, profuse Diarrhœa, and the stools swarming with bacteria. The germs also of Typhoid Fever, in my opinion, more frequently gain admission into artizan habitations through the sink pipes than by any other means. An inspection of the houses where Typhoid Fever existed during 1878 shewed that, in the majority of instances, the water supplied to them was pure in quality, and no apparent defect existed in their sanitary appliances.

INFANTILE MORTALITY.

The delicate organisation of infants is especially sensitive to sanitary surroundings. Noxious influences in towns predominate over those in rural districts; hence we find infantile mortality to be much higher among urban than rural populations. The most correct standard for the measurement of the infant mortality of a town is the proportion of deaths of children under one year to 1,000 births registered, and this is now generally accepted as the most trustworthy test of the sanitary condition (physical and social) of any community.

During 1878, the total deaths in Leicester, from all causes, of children under one year were 971: the births, registered in the same period, amounted to 4,779; the infantile mortality was, therefore, equal to 203 per 1,000.

From Table VI., compiled from the Quarterly Returns of the Registrar-General, it will be observed:

1st. That the infantile mortality in Leicester, *for the year*, was, with the exception of Norwich, higher than in any of the other large towns.

2nd. That the mortality was very *unequally distributed* over the quarterly periods. The rates for the first and fourth quarters of the year were low, being 12 and 13 per 1,000 *below* the average rate for the twenty towns; the rate for the second quarter shewed an increase on those of the first and fourth, and exceeded by 10 per 1000 the average urban rate. The rate of mortality during the third quarter was excessive, and equalled 86 per cent., the total mortality in the other three quarters. This rate for the summer quarter was far in excess of those of the other towns, and exceeded by no less than 146 per 1,000 the average urban rate.

3rd. THAT IT WAS ENTIRELY OWING TO THIS ENORMOUSLY HIGH FATALITY, DURING THE THIRD QUARTER, THAT THE TOWN OCCUPIED SUCH AN EXCEPTIONALLY PROMINENT POSITION IN THE AVERAGE RATES FOR THE YEAR.

In his thirty-ninth Annual Report the Registrar-General gives a valuable and instructive table shewing the proportional deaths, from nine causes, of infants under one year to births, in fifteen large towns, during the four years 1873-6. The information contained in this table is of so important a character as to justify its full insertion.

TABLE VI.

PROPORTIONAL NUMBER OF DEATHS OF CHILDREN UNDER ONE YEAR OF AGE IN TWENTY LARGE ENGLISH TOWNS FOR EACH QUARTER OF THE YEAR 1878.

BOROUGHS, &c.	DEATHS UNDER 1 YEAR TO 1,000 BIRTHS REGISTERED.				
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Yearly Average.
In 20 towns ...	153	142	234	162	173
London	150	143	214	149	164
Brighton	183	134	249	135	175
Portsmouth ...	123	126	230	124	151
Norwich	194	153	344	164	214
Plymouth	260	152	188	174	193
Bristol	149	131	158	206	161
Wolverhampton...	173	134	197	190	173
Birmingham ...	171	133	235	156	174
Leicester	**141**	**152**	**380**	**149**	**205**
Nottingham ...	160	136	237	150	171
Liverpool	156	159	289	172	194
Manchester ...	146	150	231	178	176
Salford	160	130	258	196	186
Oldham	148	148	191	212	175
Bradford	156	151	205	196	177
Leeds...	146	133	282	191	188
Sheffield	134	141	236	200	178
Hull	125	113	339	166	186
Sunderland ...	176	165	261	134	184
Newcastle	148	115	222	159	161

TABLE VII.

Proportional Number of Deaths under One Year of Age from different Causes in England, in Scotland, and in Fifteen Large Towns, 1873–6.

Boroughs, &c.	Years.	Annual Number of Deaths of Children under One Year of Age to every 1000 Births in the Three Years 1873–5, and in the Year 1876.									
		All Causes.	Whooping-cough.	Teething.	Diarrhœa.	Convul-sions.	Lung Diseases.	Tubercular Diseases.	Atrophy.	Premature Birth.	Suffocation.
England ...	1873-5	153	5·9	2·9	17·1	25·1	26·3	9·8	26·7	12·8	1·4
	1876	146	5·2	2·9	17·0	23·1	26·8	9·4	23·4	12·9	1·4
Scotland ..	1870-2	126	6·4	3·4	7·0	5·5	25·2	11·1	30·7		·9
	1873	125	5·3	3·0	8·1	6·2	24·6	10·4	31·4		1·3
Portsmouth ...	1873-5	141	5·3	3·0	32·2	21·5	24·2	11·7	22·7	6·1	1·1
	1876	142	4·8	4·1	22·3	18·4	23·7	17·7	16·7	9·2	·7
London	1873-5	159	8·3	3·6	20·4	18·5	31·9	13·8	20·5	10·4	4·0
	1876	157	8·4	3·3	21·2	18·8	31·3	13·3	18·2	11·0	3·9
Wolverhampton	1873-5	168	5·9	1·1	22·0	30·4	31·2	9·4	26·4	10·2	·4
	1876	176	5·1	2·4	25·7	29·1	34·9	11·3	18·8	12·0	1·7
Sunderland ...	1873-5	166	7·3	3·2	21·3	28·2	25·4	6·4	39·4	13·6	·6
	1876	152	6·4	1·6	21·1	22·9	22·4	3·2	32·0	18·1	·2
Oldham	1873-5	179	7·5	4·8	16·4	26·0	36·2	11·8	27·3	16·3	—
	1876	174	1·5	2·3	15·2	26·9	38·5	10·3	31·0	12·7	—
Norwich	1873-5	182	9·8	2·0	27·2	22·9	20·8	6·9	63·0	8·6	—
	1876	176	1·1	2·5	38·8	18·1	22·4	11·8	44·8	8·5	—
Salford	1873-5	184	4·2	2·2	31·5	25·0	27·7	9·1	32·4	10·3	·6
	1876	189	8·8	3·3	24·6	22·5	32·9	11·1	32·3	13·2	1·0
Sheffield	1873-5	181	6·5	5·2	31·0	33·0	36·9	8·0	10·4	12·5	·5
	1876	169	4·5	3·3	29·4	32·7	31·1	8·8	25·9	13·2	·9
Birmingham ...	1873-5	185	7·5	1·6	33·9	13·4	28·3	7·1	39·7	14·1	10·0
	1876	160	4·4	2·2	30·2	13·0	30·7	8·7	29·8	11·9	7·0
Newcastle-upon Tyne	1873-5	190	5·2	2·6	24·4	37·7	24·5	13·9	37·9	12·0	1·6
	1876	167	3·1	4·5	18·8	29·2	23·7	11·5	28·4	13·4	5·5
Manchester ...	1873-5	193	6·5	2·9	28·7	28·1	31·3	9·0	33·9	11·1	·7
	1876	180	6·6	3·3	27·0	28·5	21·5	2·2	28·8	12·0	·5
Nottingham ...	1873-5	189	5·3	2·7	33·7	32·1	25·4	15·4	47·0	16·8	·6
	1876	172	5·5	2·9	33·0	26·4	25·0	12·4	34·5	16·9	1·1
Leeds	1873-5	196	5·5	3·5	30·9	26·2	32·4	9·8	32·2	16·6	1.0
	1876	180	4·9	2·1	31·1	25·4	27·8	9·5	29·3	14·4	·9
Leicester ...	**1873-5**	**224**	**6·0**	**4·1**	**54·5**	**31·6**	**23.1**	**11·8**	**50 7**	**16 6**	**.8**
	1876	**200**	**3·8**	**1·7**	**47·3**	**21·7**	**23·4**	**7·5**	**48·7**	**20·5**	**1·9**
Liverpool	1873-5	219	9·9	2·2	31·9	28·6	39·4	12·6	37·7	10·6	8·2
	1876	208	10·9	1·0	23·2	26·3	40·7	10·6	36·2	11·1	9·0

Commenting upon the facts in Table VII., the *British Medical Journal*, in its issue of August 31st, 1878, said: "The rate of infant mortality during these four years, measured by the proportion of deaths under one year to births, was higher in Leicester than in any other of the largest English towns, not even excepting Liverpool. Compared with Liverpool the death-rate among infants under one year of age, during these four years, from the Zymotic diseases (excepting Diarrhœa), and from diseases of the respiratory organs, was considerably lower in Leicester; whereas, from teething, convulsions, atrophy and debility, and premature birth, the death-rate was considerably lower in Liverpool than in Leicester. It is easy to understand why an infantile population, which is liable to an exceptionally high death-rate from teething, convulsions, atrophy, and premature birth, also suffers excessively from summer diarrhœa. The children likely to die of teething, convulsions, and atrophy, at other times of the year fall victims to diarrhœa under the influence of high temperature." After comparing statistics of recent years and examining the mortality in Leicester at different groups of ages, the writer goes on to say: "The result of this examination is to show that, whereas the excess of mortality among infants aged under one year, in Leicester, was last year (as in recent years) so remarkable, the death-rate among children and adults aged over one year was very considerably below the *normal* rate, according to the English Life-table, both in the aggregate and at each group of ages. The excess of infant mortality in Leicester, therefore, is not the result of low sanitary condition, or the death-rate of children and adults could not be so satisfactorily low. It is not due exclusively, or even mainly, to the exceptional fatality of Diarrhœa; for we have seen that the mortality referred to atrophy, debility, convulsions, teething, and premature birth, show a similar excess. It appears, therefore, impossible to avoid the conclusion that the excess of infant mortality in Leicester must be principally due to ignorance, or wilful neglect of infant life; and we appeal to the women of Leicester to investigate this question, and no longer to ignore the responsibility which primarily rests upon them."

An enquiry into the *seasonal fluctuations* observable in the infantile mortality of Leicester has convinced me that the arguments and conclusions in the above extracts are unsupported by

facts. The deaths, in 1878, of infants under one year from several causes were as follow :—

	No. of Deaths.	Deaths to 1000 Births Registered.
Measles	7	1·5
Scarlet Fever	4	·8
Whooping Cough	29	6·0
Convulsions	122	25·5
Diarrhœa	254	53·1
Atrophy	235	49·2
Premature Birth	79	16·5
Lung Diseases	109	22·8

On comparing these rates with those given in the Table of the Registrar-General for 1876, but slight difference is observed in the returns for most of the diseases.

TABLE VIII.

AVERAGE ANNUAL NUMBER OF DEATHS OF CHILDREN UNDER ONE YEAR TO EVERY 1000 BIRTHS, IN THE FOUR YEARS 1873—76, FOR FIFTEEN LARGE TOWNS.

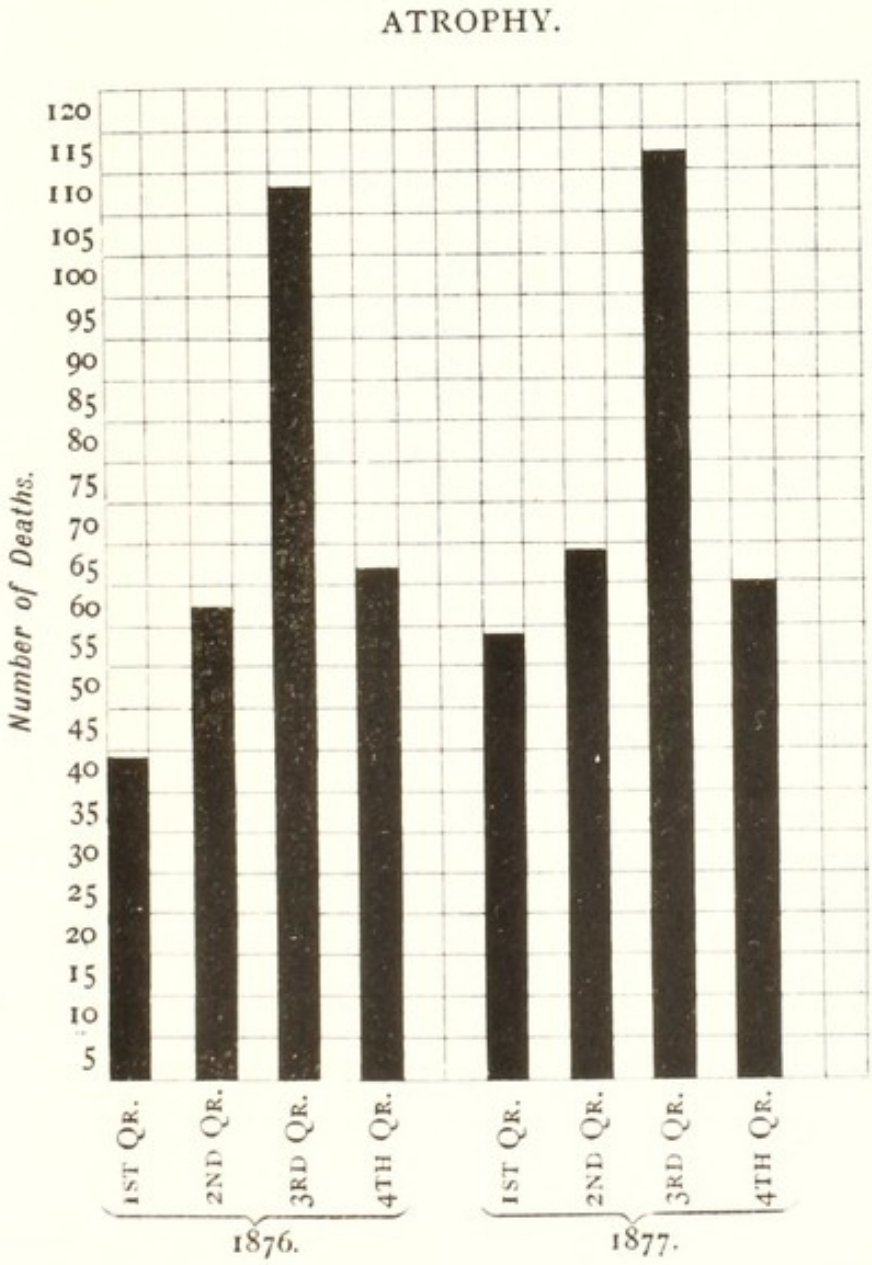
	Teething, Premature Birth, and Convulsions.	Atrophy and Diarrhœa.	All Causes.
ENGLAND	40·8	42·1	149
Birmingham ...	28·1	66·8	172
Portsmouth ...	31·1	46·9	141
Norwich	31·3	86·9	179
London	32·8	40·1	158
Salford	38·2	60·4	186
Manchester ...	39·4	59·2	186
Liverpool	39·9	64·5	213
Wolverhampton...	42·6	46·4	172
Sunderland ...	43·8	56·9	159
Leeds	44·1	61·7	188
Oldham	44·5	44·9	176
Leicester	**48·1**	**100·6**	**212**
Nottingham ...	48·9	74·1	180
Newcastle	49·7	54·7	178
Sheffield	49·9	48·3	175

From Table VIII. it will be seen that the average mortality from Teething, Convulsions, and Premature Birth was higher in Nottingham, Newcastle, and Sheffield than in Leicester, although the weather conditions were much the same in all the towns; Leicester, however, suffered much more severely from Diarrhœa and Atrophy. The exceptionally high rates from these two causes in 1876 exhibited still further increase in 1878, and the mortality was considerably in excess of the rates in other towns. The notoriety which Leicester has gained for high infantile mortality is, therefore, chiefly owing to high death-rates from Atrophy and Diarrhœa; and the question of the causes of this high mortality mainly confines itself to the elucidation of circumstances peculiar to the town, and which are especially promotive of atrophic and diarrhœal disease.

A careful inspection of the Death Registers of the town shews that the mortality amongst infants from atrophic diseases during the first, second, and fourth quarters of the years 1876 and '77, was not excessive when compared with the rates of other manufacturing towns. In the third quarter of each of these years, however, the deaths from Atrophy and Debility shewed a marked increase; in fact, they were almost double in number to those of any other quarterly period. This variation in quarterly fatality is rendered more apparent by the accompanying diagram, on which the deaths are represented by means of columns.

The deaths, for 1878, from atrophic diseases again shewed a proportionately excessive increase in the *third* quarter; *e.g.*, 44 deaths were registered in the first, 49 in the second, 99 in the third, and 43 in the fourth quarter of the year. The reason of this excessive increase in atrophic mortality observable in the returns for Leicester, during the summer quarter, is simply this: there are several medical men of extensive practice in the town who regard Diarrhœa as only *a symptom* indicative of or incidental to previously existing developmental disease. They accordingly assign the cause of death in many of their diarrhœal cases to debility, weakness, or atrophy. This mode of registration, so far as I am aware, is not followed by the medical men of any other large English town. The accompanying disease map, on which the localities of the deaths from atrophy are indicated, shews that the distribution of the fatality closely agrees in character with that of the diarrhœal deaths.

Diagram shewing the Number of Deaths, in each Quarter of the Years, 1876 and 1877, of Children under one year of age, from Atrophy.



I think that the following conclusions may now fairly be drawn from the brief but important evidence I have here recorded :—

1st. That, during the first, second, and fourth quarters of the year, the children of Leicester do *not* die in greater numbers from teething, convulsions, etc., than those of other manufacturing communities.

2nd. That a considerable per centage of the deaths referred to Atrophy, in previous years, resulted from diarrhœal seizures.

3rd. That the excess of infant mortality in Leicester is mainly due to exceptional fatality from Diarrhœa experienced during the summer months of each year.

I am satisfied, therefore, *(a)* that ignorance and wilful neglect of infant life, on the part of the mothers, is not more general in Leicester than in other towns, and *(b)* that our high position for infant mortality among other large Towns is largely, if not wholly, dependent upon an insanitary condition—a wide-spread contamination of the atmosphere with putrefactive products during the summer months of each year.

DAY NURSERIES.

Amongst remedial suggestions for the practical check of infantile mortality, the Créche or nursery system occupies no unimportant place. To a large extent female labour is demanded in Leicester, and the supply of that demand comes from the ranks of the married as well as the unmarried women of the artizan classes. It may, however be naturally objected that when married the wife's and mother's place and occupation are at home and with her own children and that the husband should be the rightful bread-winner for all. This, in vast numbers of homes, is the case; and though in theory this arrangement should be universal, yet in practice it must be allowed that with very many it is not only expedient but necessary that the wife and mother should leave her home for work. This may arise from several causes. The husband's wages may be small and work irregular, either from lack of work to be obtained or from ill-health. The interests of the employer of female labour cannot be entirely overlooked. The girl who is apprenticed to a certain work in any factory or warehouse, is, perhaps, about to marry when her services are best

worth retaining, and it does not seem unreasonable on the one hand that those services should be retained for the master's benefit or that the young married woman should be allowed, especially in the first few years of her married life, for her own benefit, to reap the advantages which the better wages would bring to her family. There is no extensive fame for provident habits amongst the artizan classes, and it is often the sight of the "little family" about them which will engender that care and providence which are so useful and necessary. Even granting, however, that such married women are to be excluded from the factory or warehouse altogether—no matter at what inconvenience either to employer or employed—the utility of a public nursery has not vanished. What, it must be asked, is to be said of widows, left, perhaps suddenly, to struggle with a young family, the elder members of which are rigidly compelled to attend school, and who for some years may not become even "half-timers?" True, the parish will help in its own way, but to escape total pauperization, the struggling mother will work, and to obtain work she may be obliged to leave her home. Naturally, she turns to the nursery where her little one or ones under school age (3 years) may be taken care of, leaving herself free to obtain what she can for their living.

It has, further, been said in objection to the nursery system, that by forced absence from the mother, all day long, the natural affection for her on the part of the child is weakened and perhaps destroyed. No one who looks into a well organized nursery at "nursing" time or when the mother leaves or fetches the little one away can hold this objection as valid for a moment. It is clear that the evil—if evil it is called—of mothers leaving their children in other hands, from various causes, exists. At any rate the fact remains. It is quite beside the question and a mere objection to say that the nursery system has caused either the evil or the fact. So long as circumstances remain as they are, infant children will be put out to nurse during the day. The question arises how best they may be dealt with. Doubtless, the nursing in many cases has been as bad as it could possibly be. Infants have been left to the care of a "girl" very little older than the children she has in charge, and dangers of all kinds surround them at home from the fire, the boiling pot or kettle, falls, and what not, and the dangers of the street and gutter beset them outside. What these little ones have for their food, and

how they get it, is a question which would offer material for very large and curious investigation. And even when "girls" of a much older growth have the irresponsible charge of several little children, crowded in a close and unwholesome atmosphere, the free use of "Godfreys," "Mother Winslow," and other soothing (!) syrups, have done their destructive part in bringing these helpless ones to a "sleeping place" from which there can be no waking in this world.

In the face of all this, the Day Nursery system appears to offer the best possible solution to the question how to deal with the infant children of mothers whose daily occupation takes them away from their homes. It is the offer of a daily home to the little ones, without infringing upon any of a mother's rights or, indeed, of relieving her of any of a mother's responsibilities. The food, attention, and general treatment given in a public nursery are judicious, and careful, and under medical supervision. Aiming at self-support, it is not a mere charity, as the mother pays for the admittance of her child, but it is a highly appreciated boon, as not only the better health of the child is secured, but often its very life is preserved by the wise and safe guardianship of the Nursery.

One effort has been made in Leicester during the past year in this direction. In June last the S. Luke's Day Nursery was opened in Metcalf Street, and the beneficial results in regard to the health of the children have been seen in many instances. The rooms are large, lofty, well ventilated, and fitted with all necessary conveniences. The cost has been large—£197 having been raised by the kindly and philanthropic liberality of many ladies and gentlemen in the town and county. The Nursery is under the direction of a managing committee, and the children are seen daily either by Mr. Denton or myself. Though called "S. Luke's" from the name of the parish in which it is situated, yet the Nursery, in the offer of its advantages, is locally unconfined and strictly undenominational. Children are received into it from all parts of the town, the only stipulations being that *(a)* both the father and mother are at work away from home, except in the case of widows, or in the event of serious non-infectious sickness in the home; *(b)* the freedom of the child and every member of the family from infectious disease. The S. Luke's Day Nursery is doing a good work, success, in all respects, is being

gradually attained, and it is an undertaking well worthy of the consideration and support of all who are interested in the social welfare of this large and increasing town. The multiplication of such nurseries is most desirable.

While this Report was going through the press, the following article, entitled "The Créche," appeared in the *Lancet*.

"This institution, borrowed from a continental community, which provides for the care of young children while their natural guardians are employed in daily labour, has strong claims on public sympathy. The créche has been established in many districts as a partially self-supporting enterprise, and under proper management, has been highly successful. Well conducted, the provision should meet the legitimate needs of many cases in which recourse has been, and it is to be feared still is, largely had to baby-farming. The infants of women who earn their bread by daily labour have been put out to nurse at a small rate of payment, probably often not forthcoming at the stipulated period; and the little ones have been neglected. Outside the area of the worst mischief done by baby-farming—that in which a malignant purpose is supposed to be at work—there is a wide zone of evil arising from the almost unavoidable withdrawal of maternal care during the hours of labour. And when the wearied mother does resume the custody of her offspring, she is in no condition to minister to its necessities, much less to its health and comfort. By opening houses where young children can be left by day, and from which they will be delivered to their parents, fed and cleanly, at night, a great deal is done to render baby-farming unnecessary. Institutions of this interesting and important class should be multiplied, and conducted simply with an eye to the welfare of the poor, they will minister to a crying need, and do much to arrest an hitherto growing evil."

APPENDIX

TO THE

REPORT

OF THE

ASSISTANT OFFICER OF HEALTH,

1878.

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DEATHS FROM ZYMOTIC DISEASES DURING THE YEAR 1878.

MEASLES.

Jan.	14	35, Friar's-causeway
„	20	1, Vauxhall-gardens
March	28	117, Gresham-street
April	24	5, Milton-street
„	26	83, Chester-street
May	3	18, Metcalf-street
„	17	15, St. Margaret's-street
„	26	24, Lower Church-gate
„	31	23, „ „
June	12	31, Samuel-street
„	13	116, Willow-street
„	18	Providence-place
„	24	2, Craven-street
„	24	2, Harvey's-row, Northumberland-street
„	25	2, „ „
„	25	Blackfriars-street Cottages
July	13	5, City Wall-street
„	20	3, Court M., Sanvey-gate
Aug.	16	51, Humberstone-road
„	19	4, Jarvis-street
„	19	7, Court A., Thornton-lane
„	31	22, New-lane
Sep.	3	49, Chester-street
„	6	14, Johnson-street
„	7	13½, Archdeacon-lane
„	16	58, Thomas-street
„	16	22, Lower Hill-street
Nov.	3	6, St. James Place, Humberstone-gate
„	21	New-street, Abbey-gate
„	25	36, Mill-lane
„	28	51, Lower Brown-street
Dec.	2	6, Littleton-street

Dec.	6	14, Curzon-street, Braunstone-gate
,,	8	Welford-road
,,	10	6½, Thorpe-street
,,	19	53, Buckingham-street
,,	21	17, Bonner's-lane
,,	22	20, Clara-street
,,	26	53, Havelock-street
,,	27	14, New-street, Abbey-gate
,,	29	2, Norfolk-street

SCARLATINA.

Jan.	28	97, Brook-street
June	17	33, Frank-street
Aug.	8	4, Basil-street
Oct.	3	Court B., All Saints'-road
,,	26	14, Green-street
,,	29	50, Great Holme-street
Nov.	2	6, Lower Green-street
,,	28	1, Braunstone-gate
Dec.	7	23, Pingle-street

DIPHTHERIA

June	18	13, Mill-lane
,,	19	108, Havelock-street
Aug.	11	3, Sheen's Yard, Bath-lane
Dec.	6	18, Regent-street, Welford-road
,,	14	7, Harding-street

WHOOPING COUGH.

Jan.	5	14, Upper Kent-street
,,	11	62, Brook-street
,,	13	23, Northampton-street
,,	13	9, Fitzroy-street
,,	15	6, West-street, Braunstone-gate
,,	17	9, Denman-street
,,	20	21, Old Mill-lane

WHOOPING COUGH *(Continued)*.

Jan.	24	... ...	3, Archdeacon-lane
,,	26	... ...	228, Birstall-street
,,	59	... ...	21, West-street, Braunstone-gate
Feb.	1	... ...	Union
,,	1	... ...	9, Denman-street
,,	2	... ...	32, Catesby-street
,,	8	... .	Flude's-terrace, Dannet's-street
,,	9	... ...	39, Charnwood-street
,,	13	... ...	6, The Hollow
,,	13	... ...	97, Russel-street
,,	14	... ...	2, Court A., Northgate-street
,,	16	... ...	137, Upper Conduit-street
,,	16	... ...	42, Rutland-street
,,	16	... ...	Swan-street
,,	18	... ...	47, Melton-street
,,	19	... ...	2, Chester-street
,,	21	... ...	82, Catesby-street
,,	22	... ...	7, Woodboy-street
March	7	... ...	2, Talbot Yard, Brook-street
,,	8	... ...	2, ,, ,,
,,	8	... ...	21, Garden-street
,,	9	... ...	155, Great Holme-street
,,	14	... ...	River View, Abbey-gate
,,	15	... ...	8, Carley-street
,,	17	... ...	1, Humberstone-gate
,,	19	... ...	12, Fleet-street
,,	23	... ...	12, Barwell-street
,,	26	... ...	Rodney-terrace
April	1	... ...	29, Brittania-street
,,	1	... ...	Bassford's Yard, Royal East-street
,,	6	... ...	65, Stanley-street
,,	8	... ...	8, Victoria-street, New Bridge-street
,,	12	... ...	B. Court, Northgate-street
,,	12	... ...	Davis-street
,,	13	... ...	2, West-street, Braunstone-gate
,,	18	... ...	62, Rutland-street

WHOOPING COUGH *(Continued.)*

April	23	...	...	...	48, Dover-street
,,	27	...	...	...	76, Lee-street
May	2	...	...	...	5, Catesby-street
,,	5	...	...	...	107, Church-gate
,,	6	...	...	...	Forest-road
,,	6	...	...	...	72, Archdeacon-lane
,,	9	...	...	...	Court A., Woodboy-street
,,	9	...	...	...	22, Joseph-street
,,	17	...	...	...	60, Catesby-street
,,	17	...	...	...	2, Craven-street
,,	24	...	...	...	2, Napier-street
,,	29	...	...	...	16, Pingle-street
June	4	...	...	...	15, Palmerston-terrace
,,	6	...	..	...	29, Davis-street
,,	10	...	...	...	3, Court H, Crab-street
,,	24	...	...	...	42, Chatham-street
July	1	...	...	...	86, Upper Kent-street
Aug.	6	...	...	...	3½, Victoria-street, New Bridge-street
,,	24	...	...	...	8, Dannet's-street
,,	27	...	...	...	Highfield-street
Sep.	5	...	...	...	36, Littleton-street
,,	20	...	...	...	Mount-street
,,	22	...	...	..	12, Eldon-street
,,	24	...	...	...	7, Court A, Charles-street
Oct.	14	...	...	...	21, Waring-street
,,	25	...	...	...	12, Lower Brown-street
Nov.	14	...	...	...	49, Wheat-street
,,	15	...	...	...	132 ,,
,,	16	...	...	...	67, Evington-street
,,	18	...	...	...	30, Clipstone-street
,,	26	...	...	...	9, Christow-street
Dec.	8	...	...	...	44, Lewin-street
,,	14	...	...	...	16, Painter-street
,,	18	...	...	...	102, Birstall-street
,,	19	...	...	...	65, Clipstone-street
,,	23	...	...	...	31, Melton-street

TYPHOID FEVER.

Jan.	7	...	...	...	93, Argyle-street
March	3	...	...	...	Infirmary
,,	26	...	...	...	Curzon Cottages, Curzon-street
April	19	...	...	...	Thomas-street
,,	27	...	..	...	Union
May	19	...	..	...	16, Upper Fox-street
June	23	...	...	...	County Asylum
July	10	...	...	...	Cottage, Hinckley-road
,,	22	...	...	...	Upper King-street
Aug.	20	...	...	...	146, Wharf-street
,,	23	...	...	...	160, ,,
,,	28	...	...	...	5, Wanlip-street
,,	30	...	...	...	Infirmary
Sep.	1	...	...	...	10, Providence-place
,,	3	...	...	...	Infirmary
,,	14	...	...	...	,,
,,	15	...	...	...	,,
,,	16	...	...	...	40, St. Saviour's-road
,,	18	...	...	...	Infirmary
,,	24	...	...	...	58, Sparkenhoe-street
,,	29	...	...	...	Infirmary
Oct.	1	...	...	...	Brunswick-street
,,	1	...	...	...	Infirmary
,,	12	...	...	...	,,
,,	13	...	...	...	,,
,,	19	...	...	...	21, St. Margaret's-street
,,	22	...	...	...	70, Walnut-street
Nov.	1	...	...	...	Infirmary
,,	2	...	...	...	Bartholomew-street
,,	10	...	...	...	180, Syston-street
,,	22	...	...	...	Infirmary
Dec.	4	...	...	..	46, Abbey-lane

STREETS IN WHICH DEATHS OCCURRED DURING THE DIARRHŒA EPIDEMIC, AND THE NUMBER IN EACH, 1878.

A	
Albert-street	1
Arundel-street	1
All Saints'-road	6
Alexander-street	2
Aylestone-street	1
Arnold-street	1
Archdeacon-lane	3
Asylum-street	1
Argyle-street	3
Ash-street	2
B	
Bay-street	1
Bardolph-street	1
Bright-street	1
Bartholomew-street	1
Brierley-street	1
Bradgate-street	1
Birkley-street	1
Bakehouse-lane	1
Bedford-street (Little)	1
Belgrave-gate	5
Benford-street	4
Bonner's-lane	2
Britannnia-street	2
Brook-street	8
Brown-street	1
Brunswick-street	2
Burgess-street	1
Burley's-lane	2
Birstall-street	6
C	
Calais-street	3
Catesby-street	1
Castle-street	1
Crescent-street	1
Craven-street	1
Colton-street	1
Cedar-street	1
Chandos-street	1
Clarence-street	1
Charlotte-street	1
Chester-street	1
Clipstone-street	2
Cobden-street	1
Coventry-street	1
Curzon-street	3
Charnwood-street	3
Cranbourne-street	1
D	
Dunn's-lane	1
Denman-street	5
Dover-street	2
Dryden-street	1
Duke-street	1
Dorset-street	8
Diamond-street	1

E

Emerald-street	3
Elbow-lane	2
East Bond-street	1
Edward-street	1
Eldon-street	1
East Goscote-street	1
Eaton-street	3

F

Friday-street	3
Freeman's Common	1
Freeschool-lane	1
Flint-street	1
Fernham-street	2
Filbert-street	1
Fleet-street	1
Fox-lane	1
Frank-street	1

G

Grafton-street	1
Gas-street	1
Green-street	1
Garton-street	1
Gravel-street	2
Gladstone-street	3
Grosvenor-street	3
Goodacre-street	1
Gartree-street	2
Gover-street	1
Grange-lane	2
Grove-street	1
Gresham-street	6
Grape-street	2

H

Harcourt-street	1
Hinckley-road	2
Hollow, The	1
Highcross-street	1
Harvey-lane	1
Holme-street, Great	1
Henry-street	2

J

Johnson-street	1
Jewry Wall-street	2

K

Knighton-street	1
King Richard's-road	2

L

Lower Church-gate	1
Lower Garden-street	1
Leamington-street	1
Liggins-street	1
Lewin-street	2
Littleton-street	2

M

Mansfield-street	1
Martin-street	1
Magenta-street	1
Melville-street	1
Middle-street	1
Milton-street	1

N

New-road 1
Noble-street 2
Nichols-street 1
Newarke, The 1
Napier-street 1
New Bridge-street 4
New Park-street 2
Northgate-street and Courts 4
Northampton-street 1

O

Outram-street 1
Orchard-street 2
Osborne-street 1
Olive-street 2
Occupation-road 1
Oxford-street 1

P

Pingle-street 2
Preston-street 1
Painter-street 1
Palmerston-street 2
Pasture-lane 1

R

Russell-street 4
Rudkin-street 1
Rodney-street 2
Richard-street 1
Ruding-street 3

S

St. Margaret's-street 1
St. John's-street 1
Spencer-street 1
Spitalhouse-street 2
Short-street 1
Spinney Hill-road 1
Sherrard-street 1
St. Leonard's-street 1
Swan-street 1
Sanvey-gate 2
Stoughton-street 1
Syston-street 4

T

Trinity Hospital 1
Talbot-lane 1
Thomas-street 1
Thornton-lane 1

U

Upper Brown-street 1
Upper Conduit-street 4
Union Workhouse 1

W

Walnut-street 1
Wood-street 1
Wigston-street 2
Willow Bridge-street 1
Woodgate 1
Welford-road 2
Wharf-street 2
Willow-street 1
Wilton-street 1
Woodboy-street 1
Wheat-street 4

Y

Yeoman-street 1

DATES OF DEATH AND AGES OF CHILDREN, UNDER ONE YEAR, WHO DIED, DURING 1878, FROM DEBILITY AND CONVULSIONS.

Date.	Age.	Disease.
Jan. 1	3 weeks	Debility
,, 3	5 months	Convulsions
,, 4	4 ,,	,,
,, 10	2 ,,	,,
,, 12	3 weeks	,,
,, 16	13 days	Debility
,, 17	4 months	,,
,, 18	12 ,,	,,
,, 18	11 ,,	Convulsions
,, 20	3 ,,	,,
,, 21	1 ,,	Debility
,, 21	5 days	Convulsions
,, 22	9 months	,,
,, 24	3 weeks	,,
,, 28	6 ,,	,,
,, 29	15 ,,	,,
,, 31	9 ,,	Debility
Feb. 1	11 months	Convulsions
,, 1	7 ,,	,,
,, 2	8 ,,	,,
,, 2	5 days	,,
,, 2	4 months	Debility
,, 3	12 months	,,
,, 3	4 weeks	Convulsions
,, 3	6 ,,	Debility
,, 4	5 months	Convulsions
,, 5	12 ,,	Debility
,, 9	3 ,,	,,
,, 9	16 days	,,
,, 10	1 ,,	,,
Feb. 10	2 days	Convulsions
,, 8	5 months	Debility
,, 10	4 ,,	,,
,, 13	9 weeks	,,
,, 14	20 days	,,
,, 14	2 ,,	,,
,, 14	5 months	Convulsions
,, 15	10 days	Debility
,, 20	10 months	,,
,, 19	4 ,,	,,
,, 19	4 ,,	,,
,, 20	11 days	,,
,, 21	9 months	Convulsions
,, 22	2 ,,	Debility
,, 24	6 weeks	,,
,, 25	9 months	Convulsions
,, 26	3 ,,	Debility
,, 26	5 ,,	,,
,, 27	6 ,,	,,
,, 28	5 ,,	Convulsions
Mar. 4	4 ,,	Debility
,, 6	7 ,,	,,
,, 4	9 ,,	Convulsions
,, 7	5 ,,	,,
,, 7	20 days	Debility
,, 10	7 months	,,
,, 11	5 ,,	Convulsions
,, 12	5 ,,	Debility
,, 13	5 weeks	Convulsions
,, 14	11 ,,	Debility

Date.	Age.	Disease.
Mar. 14—	6 hours	Convulsions
,, 16—	8 weeks	Debility
,, 18—	4 months	,,
,, 18—	2 days	Convulsions
,, 20—	4 months	,,
,, 20—	3 ,,	Debility
,, 22—	3 ,,	,,
,, 23—	5 minutes	,,
,, 23—	12 days	Convulsions
,, 24—	3 months	,,
,, 26—	11 days	Debility
,, 27—	11 weeks	Convulsions
,, 28—	5 months	Debility
,, 29—	5 weeks	Convulsions
,, 29—	8 months	,,
,, 29—	3 ,,	Debility
,, 30—	5 ,,	,,
,, 31—	12 ,,	,,
Apl. 1—	11 ,,	,,
,, 1—	4 days	,,
,, 2—	1 month	,,
,, 2—	2 ,,	,,
,, 2—	2 days	,,
,, 2—	6 ,,	Convulsions
,, 3—	7 weeks	Debility
,, 3—	9 months	Convulsions
,, 4—	7 weeks	Debility
,, 4—	9 months	Convulsions
,, 6—	10 weeks	Debility
,, 8—	17 days	,,
,, 8—	16 ,,	,,
,, 11—	2 weeks	,,
,, 11—	17 days	Convulsions
,, 11—	8 months	,,
,, 13—	10 hours	,,
,, 14—	2 days	,,
,, 14—	5 months	Debility

Date.	Age.	Disease.
Apl. 15—	4 ,,	Convulsions
,, 17—	18 days	,,
,, 18—	8 months	Debility
,, 19—	5 hours	,,
,, 20—	9 months	Convulsions
,, 20—	10 weeks	Debility
,, 21—	7 months	Convulsions
,, 22—	12 ,,	Debility
,, 23—	7 ,,	Convulsions
,, 25—	1 ,,	Debility
,, 26—	3 weeks	,,
,, 27—	8 ,,	,,
,, 27—	8 months	,,
,, 27—	4 ,,	,,
,, 30—	7 ,,	Convulsions
May 2—	3 weeks	,,
,, 2—	11 months	,,
,, 5—	8 ,,	Debility
,, 5—	19 days	,,
,, 5—	4 weeks	,,
,, 8—	2 months	Convulsions
,, 9—	4 ,,	,,
,, 11—	1 day	,,
,, 11—	9 weeks	Debility
,, 13—	3 months	,,
,, 15—	1 ,,	,,
,, 17—	2 ,,	,,
,, 17—	8 ,,	Convulsions
,, 15—	11 ,,	Debility
,, 18—	5 weeks	,,
,, 21—	1 day	Convulsions
,, 23—	10 weeks	Debility
,, 23—	8 months	Convulsions
,, 26—	13 weeks	Debility
,, 27—	10 months	Convulsions
,, 29—	8 ,,	,,
,, 31—	3 ,,	Debility

Date.	Age.	Disease.
June	1— 2 months	Debility
,,	3— 3 weeks	,,
,,	4— 2 ,,	Convulsions
,,	4—12 hours	Debility
,,	4—12 ,,	,,
,,	5— 7 weeks	Convulsions
,,	6— 7 ,,	,,
,,	8— 5 months	,,
,,	8— 5 ,,	Debility
,,	10—10 weeks	Convulsions
,,	10— 4 months	Debility
,,	11— 5 weeks	,,
,,	12—10 ,,	,,
,,	20— 3 days	Convulsions
,,	21— 7 months	Debility
,,	22— 7 ,,	,,
,,	23—10 ,,	Convulsions
,,	25— 5 ,,	Debility
,,	25—12 ,,	Convulsions
,,	26— 5 weeks	Debility
,,	26—12 months	Convulsions
,,	27— 2 ,,	Debility
,,	27—12 ,,	,,
,,	27— 7 ,,	Convulsions
,,	27—10 ,,	,,
,,	28— 3 ,,	Debility
,,	29— 4 days	Convulsions
,,	29—12 months	,,
July	1—12 days	Debility
,,	3— 3 months	Convulsions
,,	3— 7 ,,	Debility
,,	4— 6 ,,	,,
,,	4— 9 ,,	Convulsions
,,	5—12 days	Debility
,,	5— 6 months	,,
,,	5— 7 ,,	,,
,,	6— 3 ,,	,,

Date.	Age.	Disease.
July	6— 5 months	Debility
,,	6— 2 ,,	,,
,,	6— 2 ,,	,,
,,	8— 6 weeks	,,
,,	11— 5 months	,,
,,	12— 3 ,,	,,
,,	13— 5 ,,	,,
,,	13— 3 ,,	,,
,,	14— 2 weeks	,,
,,	14— 9 ,,	,,
,,	15— 5 ,,	,,
,,	16— 3 months	,,
,,	17— 3 ,,	,,
,,	20— 6 ,,	,,
,,	20— 3 ,,	,,
,,	21— 5 ,,	,,
,,	21— 5 weeks	Convulsions
,,	22— 7 ,,	Debility
,,	22— 8 months	,,
,,	22— 5 ,,	,,
,,	23— 1 ,,	,,
,,	24— 5 ,,	,,
,,	25— 2 ,,	,,
,,	25—12 ,,	,,
,,	26—11 days	Convulsions
,,	27— 3 months	Debility
,,	28— 9 ,,	Convulsions
,,	29— 3 ,,	Debility
,,	29—11 weeks	,,
,,	29— 6 ,,	,,
,,	31— 4 months	,,
Aug.	1— 9 ,,	,,
,,	2— 4 ,,	,,
,,	3— 2 weeks	,,
,,	3—10 months	Convulsions
,,	4— 3 ,,	Debility
,,	5— 5 ,,	Convulsions

Date.	Age.	Disease.
Aug. 7—	1 month	Debility
„ 8—	3 weeks	„
„ 10—	6 months	„
„ 11—	5 „	„
„ 11—12	„	„
„ 11—10	weeks	„
„ 12—10	„	„
„ 13—	6 months	„
„ 13—	4 „	„
„ 14—12	„	„
„ 13—	2 days	Convulsions
„ 15—	1 month	Debility
„ 15—	8 „	„
„ 15—	4 „	„
„ 16—	6 „	„
„ 16—	3 „	„
„ 16—	3 days	Convulsions
„ 17—11	months	Debility
„ 17—14	days	„
„ 17—	2 months	Convulsions
„ 17—	6 „	Debility
„ 19—10	weeks	„
„ 19—	2 months	„
„ 20—	5 „	„
„ 20—10	„	„
„ 22—11	„	Convulsions
„ 22—	3 „	Debility
„ 24—17	days	„
„ 24—	7 months	„
„ 25—	1 „	„
„ 27—	1 „	„
„ 27—14	weeks	„
„ 27—	1 month	„
„ 27—	6 „	„
„ 28—	8 weeks	„
„ 29—	5 months	„
„ 30—	5 days	Convulsions

Date.	Age.	Disease.
Sep. 2—10	weeks	Debility
„ 2—	5 „	Convulsions
„ 2—	2 „	„
„ 5—	9 months	Debility
„ 5—	5 days	Convulsions
„ 6—	4 weeks	Debility
„ 8—	6 months	„
„ 8—13	weeks	„
„ 8—	9 months	„
„ 8—10	weeks	„
„ 8—12	months	„
„ 8—12	hours	„
„ 8—	9 months	„
„ 12—	2 days	Convulsions
„ 13—	8 months	Debility
„ 14—	3 „	„
„ 15—	2 „	Convulsions
„ 15—	2 „	Debility
„ 15—10	„	„
„ 16—	9 „	Convulsions
„ 18—12	„	Debility
„ 18—27	days	„
„ 18—	8 months	„
„ 20—	7 weeks	Convulsions
„ 20—	1 day	„
„ 21—	7 months	Debility
„ 22—	5 weeks	„
„ 22—	6 months	Convulsions
„ 22—	3 weeks	Debility
„ 23—	2 months	„
„ 24—	9 „	„
„ 24—	2 „	„
„ 25—	6 „	„
„ 25—10	„	„
„ 25—	9 „	„
„ 26—	7 hours	„
„ 28—	4 months	Convulsions

Date.	Age.	Disease.
Sep. 30—	6 weeks	Debility
Oct. 1—	3 months	,,
,, 1—	2 ,,	Convulsions
,, 4—	4 ,,	Debility
,, 9—12	,,	,,
,, 11—	9 ,,	Convulsions
,, 12—11	,,	,,
,, 12—	3 ,,	Debility
,, 13—	2 hours	,,
,, 16—	2 months	,,
,, 17—	6 days	,,
,, 17—10	months	,,
,, 17—	3 ,,	Convulsions
,, 20—	9 weeks	,,
,, 21—28	days	,,
,, 21—	2 months	Debility
,, 22—	6 weeks	Convulsions
,, 22—12	hours	,,
,, 23—	5 months	Debility
,, 23—	8 ,,	,,
,, 26—11	weeks	,,
,, 26—	3 months	,,
,, 29—	8 weeks	,,
,, 29—12	,,	,,
,, 31—	6 days	,,
Nov. 1—	9 months	,,
,, 4—	1 day	,,
,, 5—	1 week	,,
,, 5—	4 months	,,
,, 6—	4 ,,	Convulsions
,, 7—	2 weeks	,,
,, 13—	3 months	Atrophy
,, 9—	4 hours	Convulsions
,, 11—	2 weeks	Debility
,, 15—	7 months	,,
,, 18—	4 ,,	,,
,, 21—	3 weeks	,,
,, 22—	3 months	Convulsions

Date.	Age.	Disease.
Nov. 19—	9 weeks	Debility
,, 22—	7 ,,	,,
,, 21—	8 months	Convulsions
,, 22—	6 hours	,,
,, 25—	8 months	Debility
,, 26—	1 day	Convulsions
,, 25—	4 ,,	,,
,, 26—	5 weeks	,,
,, 29—11	months	,,
,, 30—	1 year	,,
,, 30—	1 ,,	Debility
,, 30—	4 weeks	,,
Dec. 1—11	,,	,,
,, 1—	6 months	,,
,, 3—	9 weeks	,,
,, 4—	1 day	Convulsions
,, 6—	3 weeks	Debility
,, 11—10	months	Convulsions
,, 12—	5 ,,	Debility
,, 12—	1 day	Convulsions
,, 14—	2 months	Debility
,, 16—	5 ,,	,,
,, 16—	3 weeks	,,
,, 16—	3 ,,	Convulsions
,, 16—	5 months	,,
,, 16—	5 ,,	Debility
,, 18—	2 days	Convulsions
,, 18—	9 months	,,
,, 19—	3 ,,	,,
,, 22—	3 weeks	,,
,, 23—	9 months	,,
,, 26—	2 weeks	Debility
,, 25—	1 year	Convulsions
,, 29—	6 months	Debility
,, 30—	6 ,,	Convulsions
,, 31—	1 day	Debility
,, 29—	1 ,,	,,

DEATHS FROM ZYMOTIC DISEASES DURING THE QUARTER ENDING MARCH 31, 1878.

Zymotic Diseases.	Under 1		1 to 2		2 to 3		3 to 4		4 to 5		Under 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 to 85		85 to 95		Over 5		All Ages		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Small-pox	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measles	1	1	-	-	-	1	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3
Scarlet Fever	-	-	-	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2
Diphtheria...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quinsy	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Croup	-	-	1	-	-	1	1	-	1	-	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	1	5
Whooping-cough	7	6	5	7	4	3	-	-	-	-	16	16	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	18	18	36
Typhus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enteric or Typhoid Fever	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2	1	2	1	3
Simple Continued Fever ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	1	-	-	1	2	2	3	5
Puerperal Fever (Metria)...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Carbuncle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	1	-	1
Influenza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Diarrhœa	-	1	1	1	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	2	-	3	2	5
Simple Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	1	1	1	1	2
Other *Zymotic* Diseases ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


OF SURGEONS OF ENGLAND
21 MAY 90
LIBRARY

DEATHS FROM ZYMOTIC DISEASES DURING THE QUARTER ENDING JUNE 30, 1878.

Zymotic Diseases.	Under 1		1 to 2		2 to 3		3 to 4		4 to 5		Under 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 to 85		85 to 95		Over 5		All Ages		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Small-pox	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Measles	2	-	3	5	1	3	-	-	-	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	8	14
Scarlet Fever	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Diphtheria...	-	-	2	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2
Quinsy	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Croup	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Whooping-cough	2	4	2	7	2	-	-	5	-	-	6	16	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	7	17	24
Typhus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enteric or Typhoid Fever	-	-	-	-	1	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	3	1	4
Simple Continued Fever ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	1	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	2	1	3
Puerperal Fever (Metria)...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbuncle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Influenza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diarrhœa	5	6	-	-	-	-	-	-	-	-	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	1	2	6	8	14
Simple Cholera...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatism	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	3	-	3
Other *Zymotic* Diseases ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


ROYAL COLLEGE OF SURGEONS OF ENGLAND
21 MAY 90
LIBRARY

DEATHS FROM ZYMOTIC DISEASES DURING THE QUARTER ENDING, SEPTEMBER 30, 1878.

Zymotic Diseases.	Under 1		1 to 2		2 to 3		3 to 4		4 to 5		Under 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 to 85		85 to 95		Over 5		All Ages		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Small-pox	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measles	1	-	6	2	1	2	-	1	-	-	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5	13
Scarlet Fever	-	-	-	-	1	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Diphtheria...	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Quinsy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Croup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Whooping-cough	2	1	1	3	-	-	-	-	-	-	3	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	4	8
Typhus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Enteric or Typhoid Fever	-	-	-	-	-	1	-	-	-	1	-	2	-	-	1	2	-	2	1	-	2	-	1	-	1	-	-	-	-	-	-	-	-	-	6	4	6	6	12
Simple Continued Fever ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Puerperal Fever (Metria)...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbuncle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Influenza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diarrhœa	114	116	12	11	2	2	-	-	-	-	128	129	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	1	1	2	1	-	1	4	5	132	134	266
Simple Cholera...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other *Zymotic* Diseases ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


ROYAL COLLEGE OF SURGEONS OF ENGLAND
21 MAY 90
LIBRARY

DEATHS FROM ZYMOTIC DISEASES DURING THE QUARTER ENDING, DECEMBER 31, 1878.

Zymotic Diseases.	Under 1		1 to 2		2 to 3		3 to 4		4 to 5		Under 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 to 85		85 to 95		Over 5		All Ages		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Small-pox	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measles	1	1	2	2	4	2	1	-	2	-	9	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5	14
Scarlet Fever	1	1	-	2	1	-	-	-	-	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	6
Diphtheria...	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	2
Quinsy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Croup	1	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2
Whooping-cough	2	5	-	3	1	1	-	2	-	-	3	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	11	14
Typhus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enteric or Typhoid Fever	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	-	1	-	1	1	-	1	1	-	1	-	-	-	-	-	-	-	-	5	7	5	7	12
Simple Continued Fever ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Puerperal Fever (Metria)...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbuncle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Influenza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diarrhœa	6	6	-	1	-	-	-	-	-	1	6	8	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	1
Simple Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	9	8	17
Ague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	1	1	4
Other *Zymotic* Diseases ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DEATHS FROM ZYMOTIC DISEASES FOR THE YEAR ENDING, DECEMBER 31, 1878.

Zymotic Diseases.	Under 1		1 to 2		2 to 3		3 to 4		4 to 5		Under 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 to 85		85 to 95		Over 5		All Ages		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Small-pox	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Measles	5	2	11	9	6	8	1	1	2	-	24	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	21	45
Scarlet Fever	2	2	-	2	2	1	-	-	1	1	6	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6	6	12
Diphtheria...	-	-	2	-	1	-	1	-	-	-	4	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	5	-	5
Quinsy	-	1	-	-	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
Croup	1	-	2	-	1	1	1	-	1	-	6	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	7	1	8
Whooping-cough	13	16	8	20	7	4	-	7	-	-	28	47	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3	32	50	82
Typhus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Enteric or Typhoid Fever	-	-	-	-	1	1	-	-	1	1	2	2	2	1	3	4	-	3	1	1	4	-	2	2	1	2	1	-	-	-	-	-	-	14	13	16	15	31
Simple Continued Fever ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	3	1	-	-	-	-	-	-	1	-	4	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-	1	-	-	1	3	5	4	9
Puerperal Fever (Metria)...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Carbuncle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Influenza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	1	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	1	2	3
Diarrhœa	125	129	13	13	2	2	-	-	-	1	140	145	-	-	-	-	-	-	-	1	2	1	-	1	-	2	-	2	3	3	1	-	1	10	7	150	152	302
Simple Cholera...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatism	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	1	1	1	-	-	1	-	-	-	1	1	-	-	-	-	-	-	1	4	4	4	5	9
Other *Zymotic* Diseases ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


ROYAL COLLEGE OF SURGEONS OF ENGLAND
21 MAY 30
LIBRARY

FLEMING'S
MAP OF
LEICESTER.
FOR
1879.
NEW FOUND POOL
ABBEY GARDEN
THE ABBEY MEADOWS
THE PASTURE
TO BELGRAVE
TO THURMASTON
GAS WORKS
THE PUBLIC WHARF
PROPOSED SITE OF GT NORTHERN RAILWAY
PUBLIC RECREATION GROUND
WILLOW BRIDGE
SANVEY GATE
BELGRAVE GATE
HUMBERSTONE GATE
HUMBERSTONE ROAD
HUMBERSTONE RD
COAL DEPOT
MARKET PLACE
BELVOIR ST
LONDON & NORTH WESTERN RAILWAY GOODS DEPOT
MIDLAND RAILWAY GOODS DEPOT
PUBLIC RECREATION GROUND
UNION WORKHOUSE
THE INFIRMARY
COUNTY GAOL
INFIRMARY SQ
OXFORD ST
BRAUNSTONE GATE
NARBOROUGH ROAD
WEST BR
PUBLIC RECREATION GROUND
ALLOTMENT GARDENS
CATTLE MARKET
GENERAL CEMETERY
COUNTY LUNATIC ASYLUM
THE FREEMENS MEADOW
NEW GAS WORKS
ALLOTMENTS
THE FREEMENS CO
VICTORIA PARK
WELFORD ROAD
LEICESTER & BURTON RAILWAY
Localities of Deaths from Diarrhoea during the Summer Quarter 1878


FLEMING'S
MAP OF
LEICESTER.
FOR
1879.
NEW FOUND POOL
ABBEY GARDEN
THE ABBEY MEADOWS
THE PASTURE
GAS WORKS
THE PUBLIC WHARF
PROPOSED SITE OF GT NORTHERN RAILWAY
PUBLIC RECREATION GROUND
TO BELGRAVE
TO THURMASTON
SANVEY GATE
WILLOW BRIDGE
BRAUNSTONE GATE
NARBOROUGH ROAD
HUMBERSTONE GATE
HUMBERSTONE ROAD
HUMBERSTONE Rd COAL DEPOT
MARKET PLACE
GALLOWTREE GATE
BELVOIR ST
LONDON & N.WESTERN RAILWAY GOODS DEPOT
MIDLAND RAILWAY GOODS DEPOT
UNION WORKHOUSE
PUBLIC RECREATION GROUND
OXFORD STREET
INFIRMARY
THE INFIRMARY
COUNTY GAOL
PUBLIC RECREATION GROUND
ALLOTMENT GARDENS
WELFORD ROAD
CATTLE MARKET
GENERAL CEMETERY
COUNTY LUNATIC ASYLUM
VICTORIA PARK
LONDON ROAD
THE FREEMENS MEADOW
NEW GAS WORKS
ALLOTMENTS
THE FREEMENS CO

A

REPORT

OF THE

SANITARY CONDITION

OF

LEICESTER,

IN

1878,

BY

J. WYATT CRANE, M.D.,

MEM. ROYAL COLL. PHYS. LOND.; PHYSICIAN TO THE LEICESTER INFIRMARY AND FEVER HOUSE, ETC., ETC.

OFFICER OF HEALTH.

LEICESTER:
PRINTED BY WINKS AND SON, HIGH STREET.

TO THE SANITARY AUTHORITY OF THE BOROUGH OF LEICESTER.

GENTLEMEN,

There is a slight increase in the number of deaths returned to me by the Registrars for the past year of 1878, as compared with those for 1877. During 1878 the number returned was 2,544; for the preceding year of 1877 there were 2,526, shewing an increase of 18; but we must add 6 deaths which occurred in the Borough Hospital in Freake's Ground, also 29 patients who died at the Leicester Borough Asylum, at Humberstone, making a return of 2,579. From this total we deduct 44 deaths which took place at the Leicester Infirmary, of persons who were not formerly inhabitants of Leicester; also 35 deaths at the Leicestershire and Rutland Lunatic Asylum, who were likewise from the county, which will bring the corrected mortality to 2,500. The ratio of deaths per 1,000 will thus be 20·5, estimating the population at 122,229, which is the lowest recorded for 15 years. On analysis it appears that of the gross total of 2,500, 1,370 were under five years of age, namely: 981 under one year, 235 between one and two, and 154 from two to five years. This gives a ratio of 48·64 per cent. under two years of age to the total mortality at all ages.

ZYMOTIC DISEASES.

MEASLES.

The deaths from this disease have amounted to 45, showing an increase of five as compared with last year, 1877, when the number was 40, and in 1876 there were 50.

DIPHTHERIA.

There is a slight decrease this year in the deaths from this disease, the number being only five, as compared with 9 in 1877, and in 1876, 10.

CROUP.

The number of deaths from croup is eight; in 1877 there were six, shewing a slight increase of two. In the years 1876 and 1875 there were 14. It is a matter of congratulation that our returns are so small.

WHOOPING COUGH.

There have been 82 deaths during the year from this cause, an increase of 17 as compared with 1877, when there were 65, and a still greater increase if compared with the year 1876, when there were only 33.

SCARLATINA.

This year, 1878, from Scarlatina there were nine deaths. It gives me pleasure to state that it is a considerable decrease as compared with 1877, when there were 33 deaths: it therefore shows a decrease of 24.

ENTERIC FEVER.

There were 30 deaths from this disease; an increase of 13 when compared with 1877, when there were 17, and in 1876, 41.

FEVER NOT SPECIFIED.

There is only one case from the above, in 1877 three, and in 1876 there were two.

TYPHUS FEVER.

One death has been returned from this cause.

DIARRHŒA AND DYSENTERY.

307 deaths have been returned under this heading, of which two were registered as due to dysentery. This shows an increase of 120 if compared with 1877. I shall not dwell upon this subject here, which has lately caused so much discussion and conjecture, but shall make a few remarks further on in my report.

RHEUMATISM.

There have been eight deaths from this cause; last year, 1877, there were 10, making a decrease of two.

ALCOHOLISM.

I have to record four deaths from Alcoholism; a decrease of one as compared with last year, and in 1876 the number was four; for the two preceding years, two.

THRUSH.

Nine deaths from the above have taken place during 1878; an increase of one as compared with the two preceding years.

CONSTITUTIONAL DISEASES.

DROPSY.

There have been 11 deaths from Dropsy; an increase of two as compared with 1877.

CANCER.

I am pleased to state that there is a diminution of six in the deaths from Cancer; in 1878 the number was 34, and in 1877, 40.

CONSUMPTION.

The deaths from this cause amount to 226; a decrease of three as compared with the two preceding years. Perhaps it would be interesting for some to know that out of 226 deaths from Consumption 126 were males and the other 100 were females; it will therefore be seen that there were 26 more males than females died during the year 1878 from this cause.

MESENTERIC DISEASE.

37 deaths have taken place during 1878 from Tabes Mesenterica, showing a decrease of 14 as compared with the year 1877, when there were 51, and in 1876 only 19.

HYDROCEPHALUS.

There is a slight increase in the death from Hydrocephalus, There has been, during the year 1878, 11 deaths returned, making an increase of three when compared with 1877, for which year there were eight.

DISEASES OF THE NERVOUS SYSTEM.

INFLAMMATION OF BRAIN, SPINE, &C.

There have been 34 deaths from Cephalitis in the year; during 1877 there were 38, shewing an increase of four.

LOCAL DISEASES.

APOPLEXY.

The deaths from Apoplexy are 44, making an increase of four as compared with the two preceding years.

PARALYSIS.

31 deaths from paralysis have taken place during this year, which is an increase of two if compared with 1877, when there were 29.

EPILEPSY.

There is a slight increase in the deaths from Epilepsy this year, 1878, there were 12, and in the two previous years 10, showing an increase of two.

CONVULSIONS.

There have been 140 deaths from convulsions, showing an increase of 4 as compared with 1877, in which year there were 144. There was one case the particulars of which were not given, but I have included it with those of one year of age.

DISEASES OF THE HEART AND BLOOD VESSELS.

From Diseases of the Heart, viz., Aneurism, Pericarditis, &c., there have been 135 deaths, showing a decrease of three when compared with 1877, in which year there were 138. From Aneurism there was one death, which is a decrease of one as compared with 1877. The deaths from Pericarditis are the same as last year, viz., one.

DISEASES OF THE RESPIRATORY ORGANS.

BRONCHITIS.

The deaths from Bronchitis are 270, which is an increase of 32 if compared with 1877, in which year there were 238. This increase is, no doubt, due to the extreme cold we have recently experienced. I find, on looking back, that it is the highest return for the past ten years, beyond which I have not carried my investigations. I will state the number which died in each year: In 1877, 238; 1876, 214; 1875, 227; 1874, 199; 1873, 203; 1872, 172; 1871, 220; 1870, 205; 1869, 166; 1868, 130; 1867, 130.

PNEUMONIA.

The deaths from the above cause during the year 1878 were 120, an increase of five as compared with 1877, when there were 115. This, no doubt, is chiefly due to the cold of this winter, as I have just now mentioned with regard to Bronchitis.

PLEURISY.

Strange enough, there is only one return from Pleurisy, and in 1877 there were seven deaths, making a decrease of six.

DISEASES OF THE DIGESTIVE ORGANS.

GASTRITIS, OR INFLAMMATION OF THE STOMACH.

There is an increase of five deaths from Gastritis when compared with 1877, when there were only two. The number this year—1878—was seven.

ENTERITIS, OR INFLAMMATION OF THE BOWELS.

12 deaths have been returned from Inflammation of the Bowels; last year—1877—13; a decrease of one.

PERITONITIS.

An increase of three from this disease: for the year 1878 there were 12 deaths; last year—1877—15; and in 1876, eight.

OBSTRUCTION OF THE BOWELS.

The same number of deaths have been returned as last year from this cause, viz., nine.

OTHER DISEASES OF THE STOMACH, ETC.

The number this year is nine; last year, 17; showing a decrease of eight, and a still greater decrease if compared with 1876, when there were 22 deaths.

LIVER DISEASES, ETC.

A decrease of four, as compared with last year—1877—when there were 26 deaths, and this year 22, which is the same as in the year 1876.

KIDNEY AND URINARY DISEASES.

NEPHRIA OR ALBUMINURIA.

The deaths from Albuminuria, or Bright's Disease as it is sometimes called, amount to 19, which is the same number as I returned last year.

DIABETES.

The number of deaths from Diabetes for 1878 is three, a decrease of one as compared with last year, when there were four.

DEVELOPMENTAL DISEASES.

PREMATURE BIRTH.

There have been 78 cases returned from Premature Birth during 1878, showing a decrease of eight when compared with those for the previous year, when the number was 86, and in 1876, 98.

OLD AGE.

The number of people that have died from old age during 1878 was 171, an increase of 18 as compared witn 1877. Last year I mentioned the death of an old man who died at the advanced age of 105; and this year there is a death recorded, at the age of 101, in the Union, of a man whose occupation was formerly that of a labourer.

ATROPHY AND DEBILITY.

There were 256 deaths from Atrophy and Debility, showing an increase of 103. In 1877 the number was 153 I must again state that some few deaths get returned under the heading of debility of people dying at an advanced age when they should be classed with those from old age.

ACCIDENT AND NEGLIGENCE.

I am pleased to state a decrease of five. From the above cause this year—1878—there were 55 deaths, and in the previous year—1877—60 deaths took place.

SUICIDES.

There is also a decrease of three in the deaths returned from Suicides. For the year 1878 the number was three, and in 1877, six.

Having been requested to prepare a report upon the infantile mortality of Leicester, as compared with other towns, I have much pleasure in submitting to your notice the accompanying table, which Dr. Turner, of Portsmouth, was kind enough to draw out for me. It will be seen from this table that while Leicester stands high in respect of its infantile mortality, the rate is by no means excessive when compared with such towns as Bristol, Norwich, and Portsmouth. I have no doubt that this difference is accounted for by the difference in the employment and habits of the respective populations. If we note the number of deaths from Atrophy, Debility, Convulsions, and

Premature Birth, which together accounted for 467 deaths under five years of age during 1878, it is easy to account for the occurrence of diarrhœa among the weakly and debilitated infants who fall victims alike to summer diarrhœa and winter bronchitis. I do not, therefore, find it necessary to alter the opinion I expressed years ago as to the causation of our annual infantile diarrhœa epidemic. If we but use our eyes as we walk along the streets, what do we see but children half-clothed, and to all appearance half-fed? And if this is the case with the older children, how do the infants fare, left to the care of children little more than infants themselves?

I believe the town to be in a perfectly sanitary state; for if it was not so should we not be suffering from some severe epidemic other than infantile diarrhœa. It is a fact, however, that the mortality from typhoid fever has only accounted for 30 deaths in 1878, which is 11 below 1876; and, notwithstanding our high infantile diarrhœa death-rate last summer, is only 13 above 1877. This entirely disproves the supposed relationship existing between infantile diarrhœa and typhoid fever. With the exception of whooping cough, which showed an increase of 17 on 1877, there was no other zymotic epidemic during the year.

In a letter from the Local Government Board, dated 31st August, 1878, there occur the following remarks with regard to infantile diarrhœa:—

"The Board fear that far too little is yet known of the causation of the present epidemic disease to enable them to advise the Sanitary Authority with confidence as to the steps which will insure its abatement. It must be observed, however, that the disease is not confined to Leicester, as will be seen by the subjoined table, which shows the recent rates of mortality from Diarrhœa in seven large towns of England:—

ANNUAL RATE PER 100,000 LIVING.

Towns.	Five Years. 1870–1874.	1875.	1876.	1877.
Leicester	282	273	229	155
Salford	232	209	169	127
Manchester... ...	226	145	158	88
Leeds	219	196	169	73
Liverpool	203	163	133	115
Birmingham ...	190	230	174	118
Hull	179	199	172	151

Before I close these few remarks I wish to be clearly understood. I do not say that Diarrhœa is the result of one cause alone, but of

several. For instance—first, early marriages, resulting in weakly and debilitated children; secondly, inattention on the part of the mothers; thirdly, artificial feeding; fourthly, unscientific medication with cordials and soothing syrups; fifthly, the effect of summer heat acting upon these conditions.

The total deaths from Bronchitis during 1878 amounted to 270; the total deaths from Diarrhœa during the year were 307. This gives a balance of only 37 in favour of Diarrhœa, bearing out the analogy existing between Summer Diarrhœa and Winter Bronchitis.

I am glad to find from a pamphlet by Dr. Weir, of this town, entitled "Infant Mortality," that my views with regard to this subject are not only corroborated, but enlarged upon. I have also pleasure in calling attention to the following remarks by Dr. Turner, Medical Officer of Health for Portsmouth, in his report for 1877:—

"In my last two reports I was at some pains to prove that Dr. Buchanan's belief that Infantile Diarrhœa is, comparatively speaking, a disease of modern times is probably correct, and that 30 years ago Leicester, in that respect, was scarcely more unhealthy than was Portsmouth at the same time. I showed that in Leicester the increase in Diarrhœa had been coincident with the establishment of new manufactories in the town, which caused an increased employment of women, thus interfering with natural alimentation of the infants. But although meteorological variations cannot *per se* produce the disorder, the factor necessary for the production of Diarrhœa being present, I believe that it will be commenced and directly influenced by those variations. That the disease is affected by the dirty or clean state of the town is, in my opinion, beside the question when compared with the one factor—artificial feeding—which can induce the disorder; that is to say, all other feeding than that derived from the mother's breast."

As I have already pointed out, "artificial feeding" is, no doubt, a great factor in the causation of the disease; but I cannot agree with Dr. Turner that it alone will induce the disorder.

In conclusion,—while the sanitary state of Leicester is good, the statistics of 1878 and previous years prove that Diarrhœa, like Bronchitis, is a meteorological accident, and that the causes of our exceptionally high infantile mortality are traceable to defective social conditions.

I have the honour to be, Gentlemen,
Your obedient Servant,
J. WYATT CRANE, M.D.,
Medical Officer of Health.

TABLE No. 1.

Per Centage of Deaths of Infants under One Year of Age to Total Deaths in large English Towns.

Towns	1877	1876	1875	1874	1873	Death Rate per 1000 per annum of Infants under One Year of Age, calculated on the Total Population. 1877.
London	24.0	25·6	24·4	24·6	25·1	5·25
Brighton	23·6	23·4	...	...	...	4·41
Portsmouth ...	24·6	21·0	22·3	23·5	25·7	4·26
Norwich	24·6	26·8	28·0	23·8	24·4	5·14
Plymouth	22·4	21·4	...	...	...	4·85
Bristol	26·0	25·6	22·6	24·5	24·9	5·55
Wolverhampton...	23·4	29·1	25·1	28·2	27·6	5·66
Birmingham ...	28·7	30·1	30·5	27·7	29·0	6·94
Leicester	35·6	36·5	35·6	36·5	38·0	7·55
Nottingham ...	26·7	27·3	24·7	27·7	26·7	6·14
Liverpool	27·5	29·5	29·5	28·3	30·5	7·26
Manchester ...	22·5	24·5	24·3	25·3	25·6	6·16
Salford	27·0	29·2	26·7	28·2	27·1	6·80
Oldham	26·0	26·0	24·9	26·2	26·7	6·21
Bradford	25·6	28·8	28·9	28·1	33·4	5·87
Leeds...	29·7	29·9	30·0	29·0	29·0	6·61
Sheffield	25·5	28·6	29·2	29·2	29·6	5·57
Hull	3·05	29·6	28·3	27·5	29·6	6·69
Sunderland ...	25·5	29·6	31·9	29·0	31·8	5·81
Newcastle	26·5	30·4	29·1	27·5	25·8	5·97
Averages ...	25·5	27·0	26·2	26·2	27·0	

INSPECTORS' REPORT OF THE SANITARY WORK, ETC.

SERGEANTS BUXTON and BRALEY report:—

Houses and Premises Inspected	1712
Orders	846
Houses Cleansed	701
Houses Disinfected	64
Drains Repaired, &c....	206
Privies and Water Closets Repaired and Altered	736
Wells Closed and Water Works Provided	70
No. of Lodging Houses Registered...	26
Dust Complaints attended to	3267
Removal of Offal, &c.	5
Removal of Animals improperly kept	26
Licensed Slaughter Houses	75

TABLE No. 2.

Shewing the Population, Inhabited Houses, Births, Deaths, and Marriages, for the Year 1878, and 10 Years preceding.

GROSS NUMBERS.

Population Estimated at the middle of the year.	No. of Inhabited Houses in District.	Births.	Deaths.	Marriages.
1878—122,229	24,438	4,779	2,500	1,107
1877—117,461	23,695	4,753	2,515	1,183
1876—113,581	22,848	4,781	2,558	1,230
1875—111,000	22,193	4,260	2,889	1,186
1874—106,202	21,513	4,375	2,548	1,080
1873—102,515	21,020	4,452	2,478	1,209
1872— 99,153	20,383	4,156	2,674	1,174
1871— 95,882	19,827	3,819	2,570	1,105
1870— 92,750	19,350	3,800	2,597	990
1869— 91,500	18,603	3,760	2,347	949
1868— 90,000	18,086	3,589	2,507	998
Average of 10 yrs. 1868—1877	...	4,174	2,568	1,110

TABLE No. 3.

Shewing the Annual Birth Rate, Rate of Mortality, and Death Rate among Children, for the Year 1878 and 10 Years preceding.

Year.	Birth Rate per 1000 of the Population.	Annual Rate of Mortality per 1000 living.	Deaths of Children under one year: per centage of Total Deaths.	Per centage of Deaths of Children under one year to Registered Births.	Deaths of Children under 5 years: per centage of Total Deaths.
1878	39·106	20·453	39·240	20·527	54·800
1877	40·464	21·411	35·666	18·872	49·860
1876	42·093	22·521	37·372	19·995	54·730
1875	38·378	26·027	35·686	24·201	55·486
1874	41·195	23·992	38·226	22·262	49·175
1873	43·427	23·013	37·449	20·844	53·672
1872	41·899	26·262	35·938	23·134	50·373
1871	39·830	25·841	37·509	25·242	52·957
1870	40·970	27·374	34·474	23·526	54·630
1869	41·092	25·125	36·736	22·900	51·597
1868	39·877	27·855	36·737	25·661	57·199
Average of 10 yrs. 1868—1877	40·922	24·942	36·579	22·663	52·967

TABLE No. 4.

Shewing the Mortality from certain Classes of Diseases, and proportions to Population, and to 1000 deaths, 1878.

	Total Deaths.	Deaths per 1000 of Population.	Proportion of Deaths to 1000 Deaths.
1. Pulmonary Diseases (*Other than Phthisis*)	406	3·32	162·4
2. Tubercular Diseases ...	268	2·19	107·2
3. Wasting Diseases of Infants...	334	2·73	133·6
4 Convulsive Diseases of infants	160	1·30	64·0

NOTES.

1. Includes Bronchitis, 270; Pneumonia, 120; Pleurisy, 1; Laryngitis, 7; Asthma, 1; other Diseases of Respiratory Organs, 7.
2. Includes Phthisis, 226; Scrofula, 2; Rickets and other Malformations, 3; and Tabes Mesenterica, 37.
3. Includes Marasmus, Atrophy, and Debility, 256; Premature Birth, 78.
4. Includes Hydrocephalus, 11; Convulsions, 140; and Teething, 9.

TABLE No. 5.

Showing Deaths from Consumption at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year ...	2	1	1	4	...	...	2	2	6	4	5	15	4	...	2	6	27
1 year to 2 ...	1	2	3	6	1	...	...	1	1	...	4	5	6	...	...	6	18
2 years to 5 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1
5 years to 15 ...	...	1	2	3	2	1	...	3	2	...	...	2	2	...	1	3	11
15 years to 25 ...	3	3	1	7	3	2	3	8	3	1	4	8	4	4	2	10	33
25 years to 35 ...	5	10	...	15	8	1	8	17	9	9	4	22	4	5	10	19	73
35 years to 45 ...	2	2	2	6	7	1	3	11	2	3	4	9	3	3	3	9	35
45 years to 55 ...	3	2	...	5	4	...	3	7	2	4	1	7	...	2	...	2	21
55 years to 65 ...	1	...	...	1	1	2	1	4	...	...	2	2	...	...	...	...	7
65 years to 75 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75 years to 85 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years to 95 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95 years and upwards ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Age not stated ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
Totals	17	21	9	47	26	7	20	53	25	21	24	70	23	14	19	56	226

TABLE No. 6.

Shewing Deaths from Enteric Fever at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1 year to 2 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2 years to 5 ...	...	...	...	...	1	1	...	2	...	...	2	2	...	...	...	...	4
5 years to 15 ...	...	...	...	...	1	...	...	1	1	1	1	3	2	2	1	5	9
15 years to 25 ...	...	...	...	...	...	...	...	...	1	...	2	3	2	...	...	2	5
25 years to 35 ...	...	...	1	1	...	...	...	...	...	...	2	2	...	1	...	1	4
35 years to 45 ...	1	...	...	1	...	...	...	...	...	...	1	1	1	1	...	2	4
45 years to 55 ...	...	...	...	...	...	...	...	...	1	1	...	2	1	...	...	1	3
55 years to 65 ...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1
65 years to 75 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75 years to 85 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years to 95 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95 years and upwards ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Age not stated ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	1	...	1	2	2	2	...	4	3	2	8	13	6	4	1	11	30

TABLE No. 7.

Shewing Deaths from Fever not specified at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year ...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
1 year to 2 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2 years to 5 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5 years to 15 ...	...	...	...	...	...	...	...	...	...	...	...	...	I	...	...	I	I
15 years to 25 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25 years to 35 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35 years to 45 ...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...
45 years to 55 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55 years to 65 ...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
65 years to 75 ...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
75 years to 85 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years to 95 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95 years and upwards ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Age not stated ...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	...	...	...	...	...	...	...	...	...	...	...	...	I	...	...	I	I

TABLE No. 8.

Shewing Deaths from Typhus Fever at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1 year to 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2 years to 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5 years to 15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15 years to 25	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1
25 years to 35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35 years to 45	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45 years to 55	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55 years to 65	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65 years to 75	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75 years to 85	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years to 95	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95 years and upwards	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Age not stated	...	...	...	...	...	..	...	...	..	...	...	...	...	...	...	...	...
Totals ...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1

TABLE No. 9.

Shewing Deaths from Scarlatina at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1
1 year to 2 ...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	3	3
2 years to 5 ...	...	...	...	...	...	...	1	1	...	1	...	1	...	1	...	1	3
5 years to 15 ...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	1	2
15 years to 25 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25 years to 35 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35 years to 45 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45 years to 55 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55 years to 65 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65 years to 75 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75 years to 85 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years to 95 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95 years and upwards ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Age not stated ...	...	...	...	...	...	..	...	...	..	...	...	...	...	...	...	...	...
Totals	...	1	...	1	...	...	1	1	...	1	...	1	2	2	2	6	9

TABLE No. 10.

Shewing Deaths from Diarrhœa and Dysentery at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year ...	...	...	1	1	3	..	2	5	101	101	34	236	8	2	3	13	255
1 year to 2 ...	...	...	1	1	1	...	...	1	4	15	6	25	1	...	1	2	29
2 years to 5 ...	...	1	...	1	...	...	...	...	3	1	...	4	...	...	1	1	6
5 years to 15 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15 years to 25 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25 years to 35 ...	...	...	...	...	...	...	...	...	2	...	...	2	...	1	...	1	3
35 years to 45 ...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
45 years to 55 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1
55 years to 65 ...	...	...	...	..	...	...	...	...	1	...	...	1	1	...	...	1	2
65 years to 75 ...	...	...	...	...	1	...	2	3	...	1	1	2	...	...	...	...	5
75 years to 85 ...	...	1	...	1	...	...	...	...	...	2	...	2	...	1	...	1	4
85 years to 95 ...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	1
95 years and upwards ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Age not stated ...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	...	3	2	5	5	...	4	9	111	121	41	273	10	4	6	20	307

TABLE No. 11.

Shewing Deaths from All Causes at different ages in each month of the Year 1878.

AGE.	Jan.	Feb.	Mar.	Total 1st Qr.	April	May	June	Total 2nd Qr.	July	Aug.	Sept.	Total 3rd Qr.	Oct.	Nov.	Dec.	Total 4th Qr.	Total for the Year.
Under 1 year ...	41	68	51	160	79	49	43	171	190	164	112	466	49	51	84	184	981
1 year to 2 ...	12	19	18	49	23	14	14	51	25	32	28	85	15	11	24	50	235
2 years to 5 ...	6	7	16	29	23	10	6	39	9	10	14	33	8	13	32	53	154
5 years to 15 ...	3	7	6	16	11	9	2	22	7	6	5	18	12	5	10	27	83
15 years to 25 ...	4	6	3	13	10	7	6	23	10	3	14	27	8	9	10	27	90
25 years to 35 ...	13	14	4	31	16	3	11	30	23	10	10	43	9	15	20	44	148
35 years to 45 ...	5	9	16	30	14	11	6	31	8	12	21	41	11	13	15	39	141
45 years to 55 ...	14	12	14	40	20	8	10	38	12	12	8	32	8	8	20	36	146
55 years to 65 ...	11	9	12	32	19	13	5	37	9	8	8	25	15	12	34	61	155
65 years to 75 ...	19	20	13	52	19	11	9	39	13	11	25	49	12	15	41	68	208
75 years to 85 ...	8	15	14	37	27	8	8	43	13	14	7	34	10	8	32	50	164
85 years to 95 ...	2	...	4	6	5	1	1	7	3	2	4	9	1	4	10	15	37
95 years and upwards	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1
Age not stated ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
Totals	138	186	171	495	266	144	121	531	322	284	256	863	158	165	333	656	2544

TOTALS FOR THE YEAR 1878.

Class. Order.		0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 to 95	95 and upwards	Total under 5 years	Total all Ages.
	Zymotic Diseases.															
I. — 1.	Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	7	21	17	...	...	...	...	...	...	...	...	...	45	45
	Scarlatina	...	1	3	3	2	...	...	...	...	...	...	...	...	7	9
	Diphtheria	...	...	2	2	1	...	...	...	...	...	...	...	...	4	5
	Quinsy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Whooping Cough	...	27	27	21	7	...	...	...	...	...	...	...	...	75	82
	Enteric Fever	...	...	...	4	9	5	4	4	3	1	...	...	...	4	30
	Typhus Fever	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
	Fever not specified	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
	Erysipelas	...	4	...	1	...	...	...	1	1	...	...	1	...	5	8
	Pyæmia	...	...	...	...	...	...	1	1	...	...	...	...	...	...	2
	Carbuncle	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Influenza	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Diarrhœa and Dysentery	...	255	29	6	...	3	1	1	2	5	4	1	...	290	307
	Cholera	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
	Rheumatism	...	...	...	1	2	2	...	...	3	...	...	...	...	1	8
	Other Zymotic Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
II.	Syphilis	...	4	2	...	...	1	1	...	...	...	...	...	...	6	8
	Stricture	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Hydrophobia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Glanders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Diseases of this Order	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
III.	Alcoholism	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2
	Delirium Tremens	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2
	Purpura	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1
	Privations	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
	Other Diseases of this Order	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
IV.	Thrush	...	9	...	...	...	...	...	...	...	...	...	...	...	9	9
	Worms	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Parasitic Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Diseases of this Order	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
II. — 1.	Gout	...	...	...	...	...	...	1	2	3	2	...	...	...	3	11
	Dropsy	...	2	...	1	...	...	1	2	3	...	2	...	...	3	11
	Cancer	...	...	...	...	...	3	4	13	8	4	...	...	...	...	32
	Epithelioma	...	...	...	...	...	...	...	1	...	...	1	...	...	...	2
	Mortification	...	...	...	...	1	1	...	...	...	2	...	...	...	...	4
	Bed Sore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Diseases of this Order	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
II.	Scrofula	...	1	...	...	1	...	...	...	...	...	...	...	...	1	1
	Tabes Mesenterica	...	17	12	5	2	1	...	...	...	...	...	...	...	34	37
	Tubercular Peritonitis	...	...	...	1	1	1	...	...	...	...	...	...	...	1	3
	Psoas Abscess	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Phthisis	...	27	18	1	11	33	73	35	21	7	...	...	...	46	226
	White Swelling	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Hydrocephalus	...	7	2	1	1	...	...	...	...	...	...	...	...	10	11
	Tubercular Meningitis	...	1	3	2	2	1	...	...	...	...	...	...	...	6	12
	Other Diseases of this Order	...	...	...	...	2	...	...	...	...	...	...	...	...	...	2
III. — 1.	Congestion of Brain	...	2	...	1	...	...	...	...	...	...	...	...	...	3	3
	Inflammation of Brain, Spine, and Membranes	...	5	8	5	7	1	4	...	...	...	1	...	...	18	31
	Softening of Brain	...	...	...	...	1	...	1	...	2	2	1	4	...	...	11
	Apoplexy	...	...	...	1	2	2	1	6	17	10	5	...	...	...	44
	Tetanus	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1
	Paralysis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Disease of Spine	...	...	...	...	...	2	5	3	3	11	6	1	...	...	31
	Epilepsy	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
	Chorea	...	...	...	...	...	1	2	5	...	2	2	...	...	...	12
	Convulsions	...	114	17	8	1	...	...	...	...	...	...	...	...	...	...
	Insanity	...	...	...	...	...	...	...	...	1	...	...	...	...	139	140
	Other Diseases of Brain, Spine, &c.	...	3	...	2	...	2	5	2	6	7	9	4	...	...	1
	Disease of Heart, &c.	...	1	...	...	2	9	12	22	24	23	24	7	1	5	40
II.	Pericarditus	...	...	...	...	...	1	...	...	...	...	...	...	...	1	115
	Syncope	...	1	1	...	2	...	...	...	2	...	...	1	...	1	7
	Aneurism	...	...	...	...	...	...	2	...	...	...	1	...	...	1	7
	Valvular Disease of Heart	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2
	Hypertrophy	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
	Hæmorrhage	...	2	...	...	...	...	...	1	1	2	1	...	...	2	5
	Hæmoptises	...	...	...	...	...	...	1	...	...	...	...	...	...	2	3
	Angina Pectoris	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
	Anæmia	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
	Diseases of the Air Passages	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
III.	Bronchitis	...	72	37	20	3	1	4	10	11	36	48	25	3	129	270
	Croup	...	1	2	4	1	...	...	...	...	...	...	...	...	7	8
	Pleurisy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
	Pneumonia	...	39	16	20	4	2	6	15	6	8	2	2	...	75	120
	Asthma	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
	Laryngitis	...	2	...	5	...	...	...	...	...	...	...	...	...	7	7
	Laryngismus Stridulus	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1
	Œdema Glottidis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Diseases of this Order	...	1	...	...	1	...	1	2	...	1	...	...	...	1	7
IV.	Gastritis	...	2	1	...	1	...	...	1	1	1	...	...	...	1	7
	Hæmatemesis	...	...	...	...	...	...	...	...	...	...	...	...	...	3	7
	Enteritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Melœna	...	5	1	3	...	1	...	...	1	...	1	...	...	9	11
	Peritonitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Hernia	...	1	...	...	...	4	2	1	...	3	1	...	...	1	12
	Obstruction of Bowels	...	1	...	...	1	...	...	...	1	2	...	...	...	1	5
	Fistula	...	3	...	...	...	2	1	1	1	1	...	...	...	3	9
	Perforation of Intestines	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
	Other Diseases of Stomach and Bowels	...	1	...	...	1	1	...	1	3	1	2	...	...	1	10
	Jaundice	...	4	...	1	...	...	2	...	...	1	2	1	...	5	11
	Cirrhosis	...	...	...	...	1	...	...	...	1	...	...	...	...	...	6
	Hepatitis	...	...	...	...	1	...	...	1	1	...	...	...	...	...	5
	Other Diseases of Liver, &c.	...	...	...	...	1	...	1	...	2	1	...	...	...	...	16
	Nephritis	...	3	...	...	1	...	3	2	3	3	...	...	...	3	3
	Other Diseases of this Order	...	2	1	1	1	2	...	1	...	...	...	...	...	4	9
V.	Nephria (Albuminuria)	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1
	Ischuria	...	...	...	2	1	...	1	1	6	3	3	...	...	2	19
	Diabetes	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
	Stone in Bladder	...	...	...	...	1	1	1	...	...	...	...	...	...	...	3
	Cystitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Prostatic Disease	...	...	...	...	...	...	...	...	...	1	2	...	...	...	3
	Diseases of Kidney & Bladder	...	1	...	...	...	...	...	...	...	...	3	...	...	...	3
	Amenorrhœa	...	...	...	...	...	...	1	3	1	1	1	...	...	1	8
	Menorrhagia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Diseases of this Order	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
VI.	Diseases of Uterus, &c.	...	...	...	...	...	1	1	...	2	1	1	...	...	...	6
	Ovarian Disease	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
VII.	Diseases of Joints, &c.	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
	Arthritis (Necrosis)	...	...	...	1	...	2	...	...	1	...	...	...	...	...	4
VIII.	Skin Diseases	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2
	Ulcer	...	2	...	...	...	...	...	...	...	...	...	...	...	2	2
	Phlegmon and Tumour	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
	Abscess	...	...	...	...	...	1	...	...	3	...	...	...	...	...	4
IV. — 1.	Premature Birth	...	2	...	1	2	1	...	1	...	...	...	...	...	2	7
	Protracted Birth	...	78	...	...	...	...	...	...	...	...	...	...	...	78	78
	Cystosis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Spina Bifida	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1
	Rickets & other Malformations	...	4	...	...	...	...	...	...	...	...	...	...	...	4	4
	Teething	...	3	...	...	...	...	...	...	...	...	...	...	...	3	3
II.	Child Birth	...	5	4	...	...	...	...	...	...	...	...	...	...	9	9
	Puerperal Mania	...	...	...	...	1	...	1	...	...	...	...	...	...	...	2
	Puerperal Peritonitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Flooding	...	...	...	...	1	...	1	...	...	...	...	...	...	...	2
	Puerperal Convulsions	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2
	Phlegmasia Dolens	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Placenta Previa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Diseases of this Order	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
III.	Old Age	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
IV.	Atrophy and Debility	...	228	18	4	1	...	...	...	3	52	86	29	1	...	171
V.	Accident or Negligence	...	12	4	10	7	4	1	7	1	1	5	3	...	250	256
	Murder and Manslaughter	...	...	...	...	...	1	...	...	...	...	...	...	...	26	55
	Suicide	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
	Execution	...	...	...	...	...	...	...	1	...	1	...	...	...	...	3
	Sudden Death, cause not stated	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Cause not specified, or ill-defined	...	15	6	2	1	2	...	6	1	5	6	3	...	23	47
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	1370	2544

A LIST OF STREETS IN WHICH CASES OF CONSUMPTION HAVE OCCURRED DURING THE YEAR 1878.

A	
Abbey-gate	1
Abbey-street, Gavin's Yard	1
Albert-street	2
Albion-street	1
Alfred-terrace	1
All Saints'-road	3
Andrew-street	1
Asylum-street	1
Ash-street	1
Argyle-street	1
Asylum (County)	1
Aylestone-street	1
B.	
Baker-street	1
Beal-street	1
Bedford-street	3
Belgrave-gate, Courts and Road	3
Bond-street (East)	1
Bonner's-lane	1
Brierly-street	1
Bridge-street (New)	1
Britannia-street	1
Brook-street	1
Brown-street	1
Brunswick-street	1
Brunswick-street (Little)	1
Birstall-street	3
Burton-street	1
Buckingham-street	3
C.	
Castle-yard	1
Charlotte-street	1
Chester-street	2
Christow-street	1
Church-gate (East-gates)	2
Church-gate (Lower and South)	2
Clarence-street	1
Clara-street	1
Clyde-street	1
Cobden-street	1
Colton-street	1
Conduit-street (Upper)	1
Countess-street	1
Cradock-street	1
Cromwell-street	1
Crown-street	2
Curzon-street	5
Charnwood-street	3
Christ Church-row	2
Cranbourne-street	2
County Prison	1
D.	
Danett's-street	2
Denman-street	4
Devonshire-street	1
Dover-street	1
Dunn's-lane	1
Dorset-street	3
Davis-street	1
E.	
Eaton-street	1
Elbow-lane	1
Erskine-street	1
Evington-street	1
F.	
Farnham-street	1
Fennel-street	1
Fleet-street	1
Foundry-lane	1
Foxon-street	1
Framland-street	2
Frog Island	2
Fuller-street	1
Filbert-street	1
Fitzroy-street	1
Forest-road	1
G.	
Garden-street	1
Gartree-street	1
Garton-place	1
Goscote-street—East and West	2
Goswell-street	1
Green-street (Belgrave-gate) and Green-street (Lower)	5
Grove-street (Lower)	1
Guthlaxton-street	1

H.	
Harcourt-street	1
Havelock-street	1
Heanor-street	1
Highcross-street (North & South)	2
Hill-street (Upper)	1
Hollow, The	2
Holme-street (Great and Little)	3
Humberstone-road, gate, and courts	3
I.	
Infirmary-square	1
Infirmary, The	15
J.	
Jewry Wall-street	1
Jarvis-street	2
K.	
Kate-street	1
Kent-street (Upper)	2
Kenyon-street	1
King-street	1
Knighton-street	1
L.	
Leadenhall-street	1
Leamington-street	1
Lee-street	1
Lewin-street	2
Larch-street	1
M.	
Melton-street	1
Magazine-square	1
N.	
Neale-street	2
Northgate-street	1
Northgate-street (Orange Tree)	1
O.	
Old Mill-lane	1
Oxendon-street	1
Outram-street	1
Occupation-road	1
P.	
Palmerston-street	1
Paradise-place	1
Park-street	1
Picadilly	1
Pingle-street	2
Princess-street	1
Providence-place	1
Porter-street	1
Pettifor's-yard, Charles-street	1
Pegg's-yard	1
Preston-street	1
R.	
Raglan street	1
Richard-street	3
Rayns-street	1
S.	
Sandacre street	1
Saxe Coburg Villas	1
Sanvey-gate and courts	3
Sherrard-street	2
Slawson-street	1
St. George's-street	1
St. John-street	1
Syston-street	1
T.	
Thornton-lane	2
Thomas-street	1
U.	
Underhill-street	1
Union, The	4
W.	
Wellington-street	2
Wharf-street	4
Wheat-street	1
Wigston-street	1
William-street	1
Willow-street	3
Wilton-street	1
Woodboy-street	1
Walnut-street	1
White Horse Yard	1
Y.	
York-square	1
York-street	1
York-street (West)	2
Total	22(