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County

Borough  of Bolton.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

AND

SCHOOL MEDICAL OFFICER

FOR

1909.

BOLTON:
ROBERT WHEWELL & SON, PRINTERS, FOLDS ROAD.
1910.

COUNTY BOROUGH OF BOLTON.

SANITARY COMMITTEE.

The Mayor—Coun. J. T. Cooper. J.P.
The Deputy Mayor—Ald. W. H. Brown, J.P.
Chairman—Coun. E. Aspinall.
Vice-Chairman—Coun. W. Hargraves, J.P.

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„ J. Millar, M.B.
„ E. Monks, M.B.
„ F. Steel.
„ R. Tootill, J.P.

STAFF OF PUBLIC HEALTH DEPARTMENT.

Food Inspector—Richard Spencer.

District Inspectors—1. John McMillan, Cert. R. San. I.
2. George Southern.
3. Edward Oakes, Cert. R. San. I.
4. Edward Herbert Faragher, Cert. R. San. I. and Cert. for Food.
5. Evan Sumner, M. R. San. I.
6. Herbert Daniels, Cert. R. San. I.

Chief Clerk—J. Holker, Cert. R. San. I.

Chief Disinfector—John Wilson.

Health Visitors—1. Miss D. C. Ebbetts, San. Cert. of London, Jt. Bd., and Health Visitors Cert. of R. San. I.
2. Miss S. A. Ramsden, C.M.B., Cert. R. San. I.

School Nurses—1. Miss M. Hayward, 3 years' Cert. St. Marylebone Infirmary, Lond.
2. Miss C. Kippax, 3 years' Cert. St. Marylebone Infirmary, Lond.

Matron Borough Fever Hospital—Miss Irene Webb.

Assistant Medical Officer of Health and Assistant School Medical Officer—C. W. Paget Moffatt, M.A. Lond., M.B., B.C., D.P.H. Cantab.

Medical Officer of Health and School Medical Officer—John E. Gould, M.D. Lond., D.P.H. Cantab.

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Extract from Memorandum of Local Government Board, November, 1906, as to the Annual Reports of Medical Officer of Health.

"The Report should be chiefly concerned with the conditions affecting health in the district, and with the means for improving those conditions. It should contain an account, brought up to the end of the year under review, of the Sanitary circumstances of the district, and of any improvement or deterioration which may have occurred during the year in these circumstances. Care should be taken to report fully and explicitly on the influences affecting or threatening to affect injuriously the public health in the district, and on the action which has been taken, or which may still be needed, with a view to combat those influences. It is of especial importance that the Medical Officer of Health should record what action has been taken to remedy unhealthy conditions which have been reported by him in previous annual reports, or in special reports presented during the year under review, and that attention should be called afresh year by year to such as remain unremedied."

The subjects to be especially borne in mind are :—

(1) Physical features of the District.

(2) House accommodation.

(3) Occupation and influence on health.

(4) Sewerage and drainage.

(5) Excrement and refuse disposal, system in vogue, defects if any.

(6) Water supply, sufficiency, wholesomeness and freedom from risk of pollution.

(7) Places over which the Council have supervision.

(8) Nuisances—byelaws.

(9) Method of dealing with infectious disease.

(10) Schools and their sanitary condition and action taken in regard to the health of the scholars.

(11) Medical Inspection of school children as part of the duties of School Medical Officer.

GENTLEMEN,

In presenting to you the Health Report for 1909, I am pleased to be able to draw your attention to the continued low general death-rate which has been specially noticeable during the last few years; to the lowest infantile mortality figure yet recorded in the Borough, and to the lowest death-rate from epidemic diseases for the last twenty years.

Among the many problems which have engaged your attention during the year, three stand out prominently, viz: the prevention of the spread of consumption, the housing problem, and the conversion of the old-fashioned sanitary conveniences. The Sanitary Committee have, by resolution, set their seal of approval, I am pleased to say, on the most modern type of water closet, and thus brought Bolton into line with other large towns at last.

In my last report I referred to the new work undertaken in connection with the medical inspection of school children, and now present the first annual report for a complete year. Although I believe the work has already been justified by the results, until more information has been obtained I think it unwise to suggest any schemes for the more effective treatment of the physical defects revealed. The summarizing of the large number of facts collected has given much clerical work to the Medical Inpection Staff, and I am much indebted to Dr. Moffat, and the School Nurses for their willing assistance and also for the thorough manner in which the inspection has been carried out.

Reports are also included on the work of the Health Visitors, the isolation of infectious diseases, the examination of food and drugs by the Public Analyst, and the water supply.

The year has been a strenuous one so far as the Public Health Officials are concerned, and I have much pleasure, therefore, in acknowledging the ready and willing help of all. I am also grateful for the unstinted support and consideration shewn me by the Members of the Sanitary Committee, and especially the Chairman and Vice-Chairman.

I am,

Yours obediently,

JOHN E. GOULD,

Medical Officer of Health.

Public Health Department, Bolton,
4th February, 1910.

SECTION I.

Vital and Mortal Statistics.

SUMMARY OF VITAL AND MORTAL STATISTICS.

1909.

Position	Lat. 53° 35′ N., Lon. 2° 37′ W.
Elevation above sea level	230ft. to 1450ft.
Geological Formation:—Boulder Clay and Sand over Coal Measures.	
Area in Acres	15283
Population	187824
Density	12·2
Inhabited Houses—Census 1901	35995
Uninhabited Houses—Census 1901	3093
New Houses Certified 1901—1909 inclusive ...	4440
New Houses Certified 1909	619
Rateable Value...	£832899
Births	4750
Birth-rate	25·2
Deaths	2892
Death-rate (Corrected for Institutions) ...	15·3
Corrected Death-rate (ascertained by application of Registrar-General's Factor 1·1308)	17·3
Average Death-rate (1899-1908)	17·2
Infantile Mortality	126
Epidemic Death-rate (Seven Chief Diseases) ...	1·08
Diarrhœa Death-rate	·27
Diarrhœa Mortality per 1000 Births	10·7
Gastritis and Enteritis Mortality per 1000 Births	10·3
Phthisis Death-rate	1·15
Death-rate from other forms of Tuberculosis ...	·31
Respiratory Death-rate	3·27
Rainfall (23 years' average, 41)	49·05
76 Great Towns Death-rate...	14·7
76 Great Towns Epidemic Death-rate	1·42
76 Great Towns Infantile Mortality	118

Population and Area.

For the middle of 1909 the estimated population was **187,824** and this on an area of 15,283 acres, or 23·8 sq. miles, gives a density of 12·2 persons per acre.

Births.

4,750 births were registered, rather more than last year, equal to a birth-rate of **25·2**. The illegitimate births numbered 205, and were 4·3 per cent. of the total births.

Deaths.

2,892 deaths were registered of Bolton residents, including those who died in Institutions outside the Borough. The death-rate was **15·3**, the lowest on record, while the average for ten years was 17·2. There were 259 deaths in the Workhouse, 134 in the Bolton Infirmary, 54 in Lunatic Asylum, 27 in the Borough Fever Hospitals, and 17 in other institutions outside the Borough. 28 of those who died in the Infirmary were non-residents.

The deaths in the wards varied from 11·0 in Heaton to 24·2 in Exchange Ward.

Twenty-one per cent. of the total deaths were due to respiratory diseases, chiefly bronchitis and pneumonia: eight per cent. to epidemic diseases; nine per cent. to tubercular diseases; eight per cent. to old age; and the rest to various other causes in smaller percentages, as will be seen from the summary of causes of death.

The following table shows the death-rates during the last eleven years in the Old Borough, Added Area, and Extended Borough.

Year	Extended Borough	Old Borough	Added Area
1899	19·9	20·5	18·0
1900	19·6	20·5	16·7
1901	18·2	19·3	15·0
1902	17·2	18·3	14·2
1903	17·6	18·2	15·9
1904	17·0	17·8	14·6
1905	15·4	15·9	14·0
1906	15·4	16·6	12·3
1907	16·7	17·7	14·2
1908	15·5	16·2	13·6
1909	15·3	16·0	13·7

TABLE I.

Populations, Birth-rates, &c., in Wards, 1909.

WARD.	Population.	Area.	Density.	Birth-rate.	Death-rate.	Infantile Mortality.	Zymotic Death-rate.
West	28143	450	62·5	25·1	16·4	131	·95
Halliwell	25207	358	70·4	24·0	12·3	99	·83
Derby	20748	300	69·1	28·0	15·3	145	1·54
Bradford	20677	285	72·5	28·1	19·6	146	1·40
Rumworth	9814	163	60·2	24·7	12·9	139	1·83
East	9449	160	59·0	30·3	21·1	198	2·22
Church	8438	390	21·6	18·4	13·7	128	·23
North	8071	150	53·8	25·7	14·9	81	·49
Exchange	3960	105	37·7	32·3	24·2	148	·75
Old Borough	134507	2361	56·9	26·0	16·0	134	1·16
Great Lever	12357	867	14·2	21·1	13·3	126	1·29
Tonge	11456	830	13·8	22·4	11·9	120	·96
Astley Bridge	9024	1780	5·0	21·9	13·2	111	·55
Smithills...	5984	2108	2·8	21·2	14·0	70	·66
Hulton	5715	1620	3·5	27·2	13·9	83	·69
Darcy Lever-cum-Breightmet	3381	1372	2·4	29·2	18·3	111	·88
Deane-cum-Lostock	3230	2601	1·2	30·6	18·2	101	1·23
Heaton	2170	1744	1·2	24·4	11·0	...	...
Added Area	53317	12922	4·1	23·4	13·7	103	·88
Extended Borough ...	187824	15283	12·2	25·2	15·3	126	1·08

TABLE II.

Populations, Densities, Birth-rates, Death-rates and Infantile Mortality in Previous Years.

Year.	Population	Density	Births	Birth-rate.	Deaths.	Death-rate	Infantile Mortality.
1773	5600	3·0					
1791—1800	14437	7·8					
1801—1810	20444	11·1					
1811—1820	27364	14·8					
1821—1830	37240	20·2					
*1831—1840	46579	25·3					
1841-1850	**55167**	**29·9**					
1851-1860	**61645**	**33·5**				**30·7**	
1861-1879	**75999**	**41·2**				**29·4**	
1871	83095	45·1				26·1	
1872	84072	45·6				28·0	
1873	85061	46·2				23·3	
1874	86061	46·7	3526	40·9	2219	25·7	178
1875	87073	47·3	3552	40·7	2403	27·5	193
1876	88097	47·8	3722	42·2	2199	24·9	169
1877	89133	48·4	3596	40·3	2226	24·9	169
†1878	102919	43·5	3952	38·3	2313	22·4	181
1879	103819	43·9	3897	37·5	2233	21·5	158
1880	104727	44·3	4644	44·3	2835	27·0	179
1871-1880	**91405**	**45·8**	**3841**	**40·6**	**2346**	**24·8**	**175**
1881	105643	44·7	3811	36·0	2022	19·1	151
1882	106567	45·1	3834	35·9	2277	21·3	170
1883	107499	45·5	3697	34·3	2157	20·0	171
1884	108439	45·9	3701	34·1	2615	24·1	194
1885	109387	46·3	3788	34·6	2282	20·8	161
1881-1885	**107507**	**45·5**	**3766**	**34·9**	**2270**	**21·0**	**169**
1886	110343	46·7	3786	34·3	2572	23·3	184
1887	111308	47·1	3627	32·5	2393	21·4	172
1888	112281	47·5	3729	33·2	2453	21·8	170
1889	113263	47·9	3759	33·1	2528	22·3	166
1890	114253	48·3	3726	32·5	2986	26·1	176
1886-1890	**112289**	**47·5**	**3725**	**33·1**	**2586**	**22·9**	**173**
1891	115253	48·8	3914	33·9	2516	21·6	165
1892	116261	49·2	3769	32·4	2648	22·6	185
1893	117278	49·6	3874	33·0	2813	23·8	200
1894	118309	50·1	3719	31·4	2215	18·5	162
1895	119337	50·5	3960	33·1	2862	23·7	213
1891-1895	**117286**	**49·6**	**3847**	**32·7**	**2610**	**22·2**	**185**
1896	120380	50·9	3792	31·7	2496	20·7	165
1897	121433	51·5	3985	32·8	2671	21·9	184
1898	122495	51·8	3800	31·0	2350	19·1	167
‡1899	162222	10·6	4878	30·0	3238	19·9	180
1900	164240	10·7	4775	29·0	3222	19·6	170
1896-1900	**138154**	**35·1**	**4246**	**30·9**	**2795**	**20·2**	**173**
1901	168748	11·0	4648	27·5	3085	18·2	172
1902	171082	11·1	4779	27·9	2959	17·2	132
1903	173401	11·3	4700	27·1	3062	17·6	151
1904	175744	11·4	4736	26·9	2994	17·0	167
1905	178111	11·6	4481	25·1	2754	15·4	166
1901-1905	**173417**	**11·2**	**4668**	**26·8**	**2968**	**17·0**	**157**
1906	180502	11·8	4599	25·4	2794	15·4	138
1907	182917	11·9	4476	24·4	3073	16·7	145
1908	185358	12·1	4573	24·6	2874	15·5	148
1909	187824	12·2	4750	25·2	2892	15·3	126

* Incorporation in 1838 with 48000 population and 1840 acres.
† Added in 1878 part of Rumworth with 163 acres and 3000 population, and part of Halliwell with 358 acres and 10,000 population.
‡ Borough extended and 38000 added to the population.

Birth-Rates, Death-Rates, and Infantile Mortality in 33 Great Towns, 1909 (Registrar General's Returns).

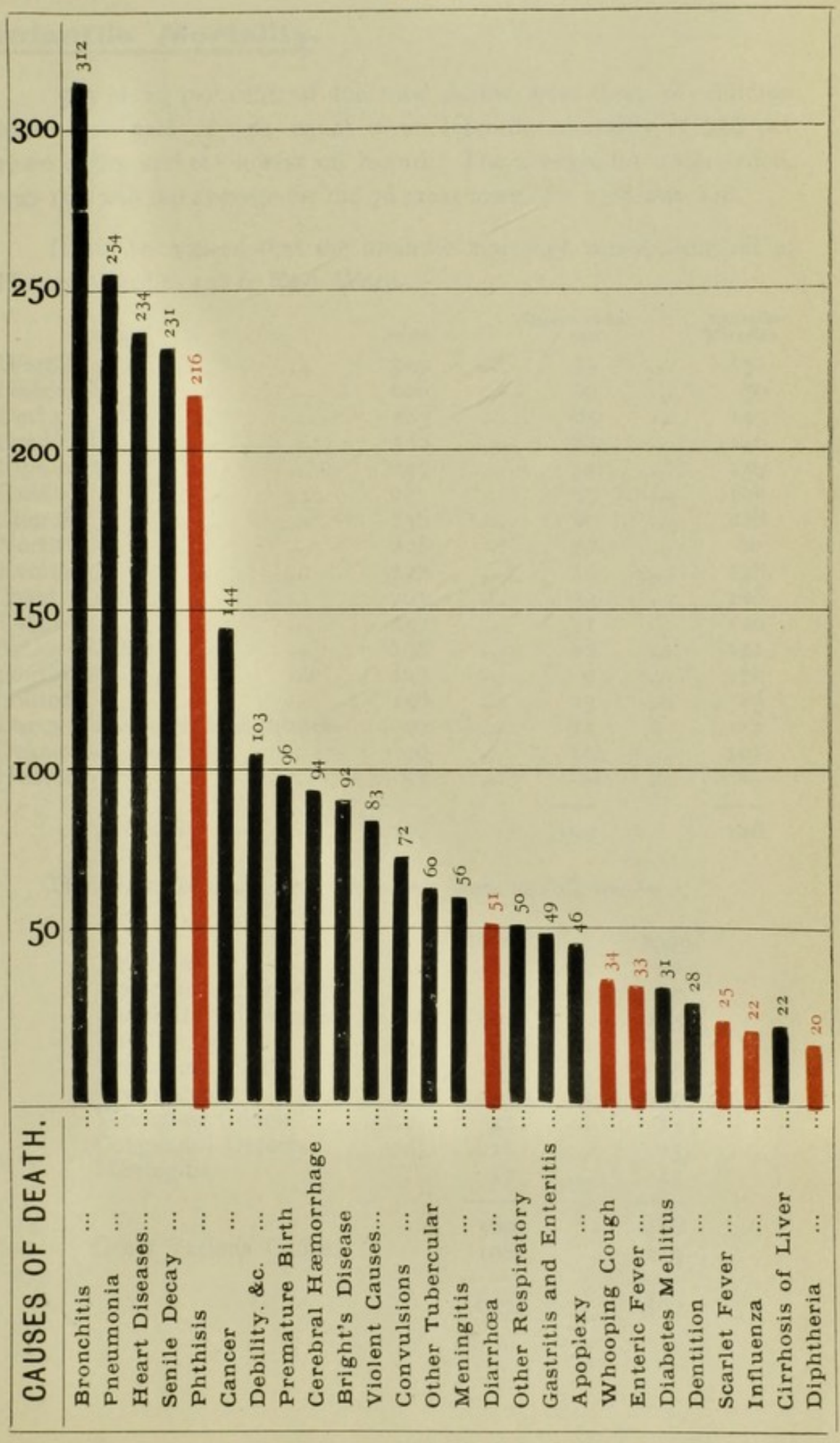
	Towns	Birth-rate	Death-rate	Epidemic Death-rate	Infantile Mortality
	76 Great Towns	25·7	14·7	1·42	118
	1 Croydon	24·3	11·7	·65	80
	2 Gateshead	28·7	12·6	·89	113
	3 Bristol	22·5	12·7	·87	100
	4 Leicester	21·9	12·8	1·22	127
	5 Cardiff	25·8	13·1	·83	103
	6 Southampton	23·6	13·3	1·04	105
	7 Derby	24·8	13·3	1·23	123
	8 Halifax	16.4	13·8	·77	97
	9 Norwich	24·2	13·8	1·54	119
	10 West Ham	27·2	14·0	2·22	124
	11 Leeds	22·7	14·0	·80	121
	12 London	24·3	14·0	1·30	107
	13 Portsmouth	27·2	14·2	1·41	95
	14 Bradford	18·7	14·5	·69	116
	15 Plymouth	22·4	14·5	1·20	130
	16 Newcastle-on-Tyne	27·3	14·8	1·22	120
	17 Hull	29·3	14·9	1·37	114
	18 Sheffield	28·1	15·0	1·79	118
	19 South Shields	28·9	15·1	1·36	138
	20 Brighton	20·5	15·2	·63	97
(L)	21 **BOLTON**	**25·2**	**15·3**	**1·08**	**126**
	22 Birmingham	26·6	15·4	2·02	134
(L)	23 Preston	25·6	15·8	1·30	136
	24 Birkenhead	30·9	15·9	1·16	124
(L)	25 Burnley	25·1	16·0	1·30	157
(L)	26 Blackburn	22·9	16·2	1·49	127
	27 Nottingham	25·6	16·2	1·68	150
	28 Rhondda	41·1	16·3	1·92	129
	29 Sunderland	29·3	16·9	1·99	135
(L)	30 Manchester	27·8	17·9	1·81	134
(L)	31 Salford	27·8	17·9	2·46	142
(L)	32 Liverpool	31·1	19·0	2·11	144
(L)	33 Oldham	27·3	19·0	1·10	121

Summary of Causes of Death, 1909.

	No. of Deaths.	Per cent. of Total Deaths.	Death-rate per 1000 of pop'ln.
General Diseases.			
1. Specific Febrile or Epidemic Diseases...	245	8·4	1·30
2. Constitutional Diseases :—			
(*a*) Phthisis	216	7·4	1·15
(*b*) Other Tubercular ..	60	2·0	·31
(*c*) Cancer	144	4·9	·76
3. Developmental Diseases :—			
(*a*) Premature Birth ...	96	3·3	·51
(*b*) Old Age	231	7·9	1·22
Local Diseases.			
1. Nervous System	200	6·9	1·06
2. Heart	234	8·0	1·24
3. Blood Vessels...	160	5·5	·85
4. Respiratory System.—			
(*a*) Bronchitis	312	10·7	1·66
(*b*) Pneumonia	254	8·7	1·35
(*c*) Other Respiratory ...	50	1·7	·26
5. Digestive System	163	5·6	·86
6. Urinary System	122	4·2	·64
7. Pregnancy and Child Birth...	16	·5	·08
8. Ill-Defined and not Specified Diseases...	109	3·7	·58
Violent Causes.			
1. Accidents	73	2·5	·38
2. Suicide...	10	·3	·05

Comparative View of the Principal Causes of Death,

1909.



Infantile Mortality.

599 or 20 per cent. of the total deaths were those of children under one year of age, equal to an infantile mortality of **126** per 1,000 births, and the lowest on record. The average for 1899–1908, was 156, and the average for the 76 great towns for 1909 was 118.

It will be noticed that the infantile mortality varied from nil in Heaton Ward to 198 in East Ward.

Ward.	Births	Deaths under 1 year	Infantile Mortality
West	707	93	131
Halliwell	606	60	99
Derby	583	85	145
Bradford	582	85	146
Rumworth	243	34	139
East	287	57	198
Church	156	20	128
North	208	17	81
Exchange	128	19	148
Great Lever	261	33	126
Tonge	257	31	120
Astley Bridge	198	22	111
Smithills	127	9	70
Hulton	156	13	83
Darcy Lever-cum-Breightmet	99	11	111
Deane-cum-Lostock	99	10	101
Heaton	53	—	—
Borough	4,750	599	126

The causes of death under one year were as follows:—

	1908.	1909.
Diarrhœa	121	41
Enteritis and Gastritis	40	27
Respiratory Diseases	102	105
Debility, &c.	87	101
Premature Birth	93	96
Convulsions	51	59
Whooping Cough	44	15
Congenital Defects	14	25
Meningitis	17	17
	569	486
Other Various Causes	108	113
	677	599

Mortality from Epidemic Diseases.

204 deaths were registered from the seven chief epidemic diseases, equal to a death-rate of 1·08, lower than the average for the last ten years, which was 2·25. It is also lower than that for the 76 great towns, which was 1·42

The causes of death are set out here, and the death-rates in previous years in Table III.

Causes of Death from all Epidemic Diseases:—

		1908.	1909.
Seven Chief Epidemic Diseases.	Small-pox	—	—
	Scarlet Fever	21	25
	Diphtheria and Membranous Croup	15	20
	Enteric, Continued Fever ...	37	33
	Diarrhœa	157	51
	Measles	2	41
	Whooping Cough	82	34
	Influenza	40	22
	Other Epidemic Diseases ...	14	19
	Total ...	368	245

TABLE III.

Death-rates from the Seven Epidemic Diseases, 1886-1909

Year.	Small-pox.	Scarlet Fever.	Diph-theria and Memb Croup	Fever.	Measles.	Whooping Cough.	Diarrhœa.	Seven Chief Epi-demic.
1886	—	·14	·06	·16	1·23	·67	1·39	4·4
1887	—	·32	·06	·31	·80	·24	1·29	3·06
1888	—	·45	·06	·33	·29	·50	·99	2·6
1889	—	·56	·25	·27	1·39	·55	·91	4·1
1890	—	·48	·12	·22	·83	·92	·94	3·53
1891	—	·18	·08	·27	·47	·38	·81	2·22
1892	—	·25	·11	·17	·36	·92	1·10	2·95
1893	·05	·28	·06	·28	1·38	·66	1·67	4·42
1894	—	·08	·04	·21	·16	·51	·57	1·59
1895	—	·17	·12	·41	1·00	·56	1·74	4·03
1896	—	·32	·07	·41	·04	·83	·85	2·50
1897	—	·18	·03	·29	1·77	·32	1·63	4·16
1898	—	·16	·06	·28	·25	·36	1·80	2·93
1899	—	·22	·08	·33	·57	·27	1·59	3·08
1900	—	·12	·12	·29	·22	·50	1·13	2·40
1901	—	·30	15	·23	·64	·59	1·42	3·05
1902	·04	·68	·27	·23	·18	·30	·40	2·12
1903	·01	·34	·21	·20	·28	·05	·87	1·98
1904	·005	·12	·16	·21	·09	·76	·88	2·25
1905	—	·02	·09	·19	·51	·04	1·01	1·88
1906	—	·09	·13	·22	·01	·11	1·15	1·72
1907	—	·16	·10	·14	1·27	·34	·36	2·40
1908	—	·11	·08	·19	·01	·44	·84	1·69
Average 1899-1908	**·005**	**·21**	**·13**	**·22**	**·37**	**·34**	**·96**	**2·25**
1909	—	·13	·10	·17	·21	·18	·27	1·08

TABLE IV.

33 Great Towns.—Death-rates per 1000 living from All Causes and from the Principal Epidemic Diseases, and Infant Mortality in the Ten Years 1898-1907, and in 1908.

Towns.	All Causes		Small-Pox.		Measles.		Scarlet Fever.		Diphtheria.		Whooping-cough.		Fever.		Diarrhœa.		Deaths Under One Year to 1000 Births.	
	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.	Ten years 1898-1907.	1908.
76 Towns.	**16·3**	**14·9**	**0·03**	**0·00**	**0·42**	**0·31**	**0·14**	**0·10**	**0·20**	**0·16**	**0·34**	**0·29**	**0·10**	**0·08**	**0·81**	**0·65**	**144**	**129**
London...	16·7	13·8	0·03	—	0·46	0·31	0·11	0·11	0·25	0·15	0·37	0·20	0·10	0·05	0.77	0·53	143	113
Croydon	13·4	12·8	0·01	—	0.20	0·58	0·04	0·04	0·18	0·24	0·26	0·17	0·05	0·03	0·65	0·31	126	99
West Ham ...	16·9	13·9	0·06	—	0·53	0·71	0·11	0·16	0·44	0·17	0·47	0·26	0·20	0.09	1·49	1·00	162	128
Brighton	16·0	14·7	—	—	0·26	0·17	0·03	0·01	0·27	0·07	0·20	0·14	0·08	0·03	0·69	0·22	138	104
Portsmouth ...	16·9	13·8	—	—	0·35	0·06	0·09	0·04	0·39	0.23	0·30	0·26	0·23	0·12	1·03	0·26	147	99
Southampton ...	15·4	12·9	0·01	—	0·27	0·16	0·03	0·04	0·26	0·13	0·24	0·28	0·12	0·04	0·83	0·52	135	113
Norwich	17·3	14·1	—	—	0·41	0·01	0·09	0·02	0·20	0·21	0·30	0·20	0·14	0·29	1·12	0·39	170	116
Plymouth	17·8	15·0	0·00	—	0·37	0·01	0·10	—	0·13	0·12	0·25	0·22	0·10	0·08	0·84	0·48	155	129
Bristol	15·8	13·6	0·00	—	0·43	0·26	0·10	0·03	0.27	0·17	0·31	0·34	0·09	0·02	0·56	0·34	132	126
Birmingham ...	18·9	15·9	0·00	—	0·41	0·11	0·19	0·13	0·21	0·19	0·44	0·54	0·17	0·09	1·22	0·80	175	144
Leicester	15·4	13·0	0·01	—	0·32	0·73	0·13	0·11	0·43	0·03	0·27	0·13	0·08	0·03	1·07	0·50	166	131
Nottingham ...	17 8	15·2	0·01	—	0·40	0.12	0·12	0·04	0·17	0·11	0·32	0·23	0·24	0·11	1·13	0·64	177	145
Derby	15·4	13·1	0·01	—	0·32	0·15	0·11	0·02	0·19	0·28	0·25	0·12	0·14	0·04	0·62	0·34	144	112
Birkenhead ...	17·7	15·8	0·01	0·01	0·40	0·35	0·16	0·06	0·23	0·11	0·40	0·50	0·21	0·09	1·07	0·76	159	136
Liverpool	21·9	19·2	0·03	—	0·49	0·34	0·26	0·28	0·24	0·17	0·47	0·45	0·20	0·11	1·49	0·84	174	141
Bolton ...	**17·5**	**15·4**	**0·01**	—	**0·41**	**0·02**	**0·23**	**0·11**	**0·14**	**0·10**	**0·31**	**0·42**	**0·23**	**0·20**	**1·10**	**0·85**	**160**	**148**
Manchester ...	21·0	18·2	0·01	—	0·62	0·56	0·17	0·15	0·19	0·18	0·43	0·33	0.14	0·11	1·31	0·92	177	151
Salford	20·6	17·8	0·00	—	0·65	0·69	0·29	0·27	0·38	0·51	0·49	0·42	0 25	0·17	1·41	0·98	180	152
Oldham	19·6	19·8	0·04	—	0·54	0·57	0·25	0·19	0·18	0·15	0·42	0·37	0·10	0·08	0·76	1·14	162	159
Burnley	19·3	17·9	0·02	—	0·53	0·48	0·31	0·12	0·25	0·12	0·36	0·38	0·17	0·11	1·55	1·59	206	200
Blackburn	18·0	15·7	0·01	—	0·48	0·13	0·29	0·17	0·30	0·09	0·27	0·21	0·17	0·11	0·91	0·85	177	149
Preston	20·4	18·0	0·01	—	0·59	0·79	0·19	0·01	0·20	0·09	0·45	0·16	0·26	0·22	1.60	0·97	198	153
Halifax	16·2	14·1	0·01	—	0·31	0·33	0·14	0·03	0·18	0·11	0·18	0·27	0·13	0·11	0·34	0.16	132	101
Bradford	16·8	15·5	0·01	—	0·31	0·24	0·17	0·04	0·21	0·14	0·25	0·19	0·16	0·10	0.65	0·65	155	143
Leeds	17·7	15·3	0·01	—	0·45	0·37	0·15	0·03	0·32	0·09	0·36	0·28	0·15	0·05	0·91	0·67	164	137
Sheffield	18·7	15·8	0·00	—	0·55	0·23	0·22	0·08	0·43	0·08	0·36	0·53	0·21	0·06	1·45	0·87	175	140
Hull	17·9	16·2	0·08	—	0·50	0·35	0·09	0·01	0·24	0·18	0·36	0·21	0·17	0·08	1·38	1·35	163	145
Sunderland ...	20·3	17·7	0.01	—	0·50	0·16	0·17	0·04	0·17	0·17	0·39	0·74	0·26	0·09	1·04	0·66	161	146
South Shields ...	18·9	15·5	0·02	—	0·49	0·27	0·21	0·08	0·13	0·20	0·47	0·43	0·19	0·06	0·75	0·65	153	134
Gateshead	18·1	14·9	0·05	—	0·39	0·13	0·15	0·04	0·14	0·20	0·46	0·52	0·08	0·03	1·13	0·98	166	148
Newc'le-on-Tyne	19·7	16·0	0·01	—	0·39	0·11	0·12	0·04	0·17	0·12	0·42	0·48	0·08	0·05	0·69	0·46	160	136
Cardiff	15·6	13·0	0·01	—	0·44	0·03	0·10	0·05	0·34	0·11	0·38	0.24	0·08	0·04	0·60	0·63	143	125
Rhondda	18·8	18·4	0·00	—	0·45	0·76	0·18	0·05	0·68	0·21	0·38	0·39	0·29	0·16	1·26	1·92	191	184

In this table 0·00 indicates that the deaths were too few to give a death-rate of 0·005; where *no deaths* occurred, ... is inserted.

England and Wales, 1908: Death rate, 14·5; Birth rate, 25·6; Infant Mortality, 109.

TABLE V.

Meteorological Observations, 1909.

(From the Borough Meteorologist's Report).

Month.	Barometer.	Readings of Thermometers.					Elastic Force of the Aqueous Vapour.	Mean Amount of Humidity Saturation per 100°.	Rain.		Registered Sunshine in Hours.	Mean amount of Ozone 0 — None 10 — Maximum
	Corrected and Reduced to 32° Far. Mean sea level.	Maximum.	Minimum.	Mean.	Range.	Dew-point.			Amount Collected.	Number of Days.		
	"	°	°	°	°	°	"	%	"		h. m.	
January ...	30·131	41·6	32·2	37·00	9·4	32·3	·188	85·7	2·279	19	29–0	·90
February	30·122	42·6	32·2	37·01	10·3	31·7	·181	83·5	1·853	9	60–50	·40
March ...	29·530	43·1	33·0	37·39	9·8	32·8	·186	83·0	3·597	21	52–40	·84
April ...	29·924	54·9	38·5	45·62	16·4	38·3	·236	71·0	4·111	17	168–55	1·20
May ...	30·101	58·9	41·5	49·44	17·4	41·0	·257	67·5	3·438	13	206–25	·40
June ...	29·978	59·4	45·9	51·37	13·5	44·4	·297	71·5	2·961	16	127–40	·40
July ...	29·885	62·4	51·1	55·31	11·4	50·7	·372	79·7	7·083	24	154–15	·70
August ...	29·989	65·6	51·1	56·96	14·2	53·6	·412	85·1	3·759	19	147–30	·26
September	30·058	58·6	47·1	52·28	11·6	48·7	·349	86·0	3·182	18	69–45	·60
October ...	29·753	55·0	43·6	48·33	11·1	45·0	·314	88·6	6·590	26	79–10	·60
November.	30·027	45·9	35·7	40·41	10·2	37·4	·224	89·4	1·866	18	54–40	·30
December.	29·649	42·4	32·8	35·49	9·2	35·8	·215	91·5	8·332	25	18–0	·60
Mean or Total	29·929	53·1	40·4	45·55	12·0	41·0	·269	81·9	49·051	225	1168–50	·60
Yearly Averages, 1887-1909	29·942	53·3	41·6	46·82	12·2	41·7	·278	81·5	41·408	211	995–20	1·05

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SECTION II.

Infectious Diseases

AND

Hospital Isolation.

Notifications.

The total notifications of ordinary infectious disease numbered **1,107,** a slight increase on those for 1908, but below the average for the last ten years. The increase was wholly due to scarlet fever cases. There were also notified under the Local Act 240 cases of pulmonary tuberculosis.

The notifications included, five small-pox; 760 scarlet fever; 95 diphtheria; 138 enteric fever; 105 erysipelas; and four puerperal fever cases.

The incidence was greater in the added area than in the old Borough, the lowest ward being Darcy Lever-cum-Breightmet with 2·9 per 1000, and the highest 12·1 in North Ward.

There were 25 deaths from scarlet fever; 33 from enteric fever; 20 from diphtheria; 51 from diarrhœa, as compared with 157 in 1908, 41 from measles; and 34 from whooping cough.

The epidemic death-rate was **1·08,** one of the lowest ever recorded.

Smallpox.

Five cases were notified in four houses. They were widely separated from one another both in time and place, and were the first that had been notified since 1905. After careful inquiry, I came to the conclusion that in three of the houses the disease was communicated from raw Egyptian cotton, the case in the fourth house being a contact from one which arose in a neighbouring district. No spread of the disease occurred in any house after notification as the contacts readily submitted to revaccination. The secondary case in one house was due to the unrecognised first case. Four of the five cases were isolated at Ainsworth Small-pox Hospital. The dates of notification were:—9th February, 8th March, 1st April (two cases), and 18th June.

TABLE VI.

Weekly Notification of Scarlet, Enteric, and Diphtheria, 1909.

Week.	1st Quarter.			2nd Quarter.			3rd Quarter.			4th Quarter.		
	Scarlet Fever.	Enteric Fever.	Diphtheria and Memb. Croup.	Scarlet Fever.	Enteric Fever.	Diphtheria and Memb. Croup.	Scarlet Fever.	Enteric Fever.	Diphtheria and Memb. Croup.	Scarlet Fever.	Enteric Fever.	Diphtheria and Memb. Croup.
1	11	2	3	8	2	2	8	...	1	25	1	1
2	12	5	1	8	1	2	15	...	1	19	2	2
3	16	2	7	8	1	2	20	...	3	25	5	1
4	10	7	4	8	...	2	22	1	1	19	3	3
5	18	1	3	12	6	3	13	...	2	22	5	2
6	14	2	1	5	1	1	13	4	2	15	17	3
7	15	6	3	11	3	...	12	1	...	15	4	4
8	8	4	2	20	2	1	13	1	1	17	2	2
9	7	8	3	21	3	...	8	...	1	21	4	2
10	9	3	3	7	1	...	10	2	...	24	2	1
11	7	2	...	21	2	...	16	2	1	16	6	3
12	9	2	1	18	1	...	8	2	1	19	2	2
13	8	2	4	19	1	1	11	1	1	21	1	3
14	...	...	...	...	...	...	...	...	...	23	...	2
Total ...	144	46	35	166	24	14	169	14	15	281	54	31

TABLE VII.

Distribution of Notified Diseases in Wards, 1909,

Wards.	Small-pox.	Scarlet Fever.	Enteric Fever and Continued Fever.	Diphtheria and Memb. Croup.	Puerperal Fever.	Erysipelas.	Total.	Rate per 1,000
West	1	164	14	9	1	12	201	7·1
Halliwell	1	68	19	17	...	5	110	4·3
Derby	...	44	15	8	...	24	91	4·3
Bradford	...	89	24	7	...	14	134	6·4
Rumworth	..	33	4	3	1	5	46	4·6
East...	...	12	15	3	...	4	34	3·5
Church	1	23	6	6	...	3	39	4·6
North	...	82	4	7	1	4	98	12·1
Exchange	...	6	1	4	1	1	13	3·2
Old Borough... ...	3	521	102	64	4	72	766	5·6
Great Lever	2	50	12	4	...	9	77	6·2
Tonge	...	80	8	5	...	3	96	8·3
Astley Bridge	...	62	1	8	...	9	80	8·8
Smithills	...	17	2	3	...	1	23	3·8
Hulton	...	16	4	7	...	6	33	5·7
Darcy Lever-c-Breightmet	...	4	6	...	...	...	10	2·9
Deane-cum-Lostock ...	...	4	3	3	...	3	13	4·0
Heaton	...	6	...	1	...	2	9	4·1
Added Area	2	239	36	31	...	33	341	6·3
Extended Borough ...	5	760	138	95	4	105	1107	5·8

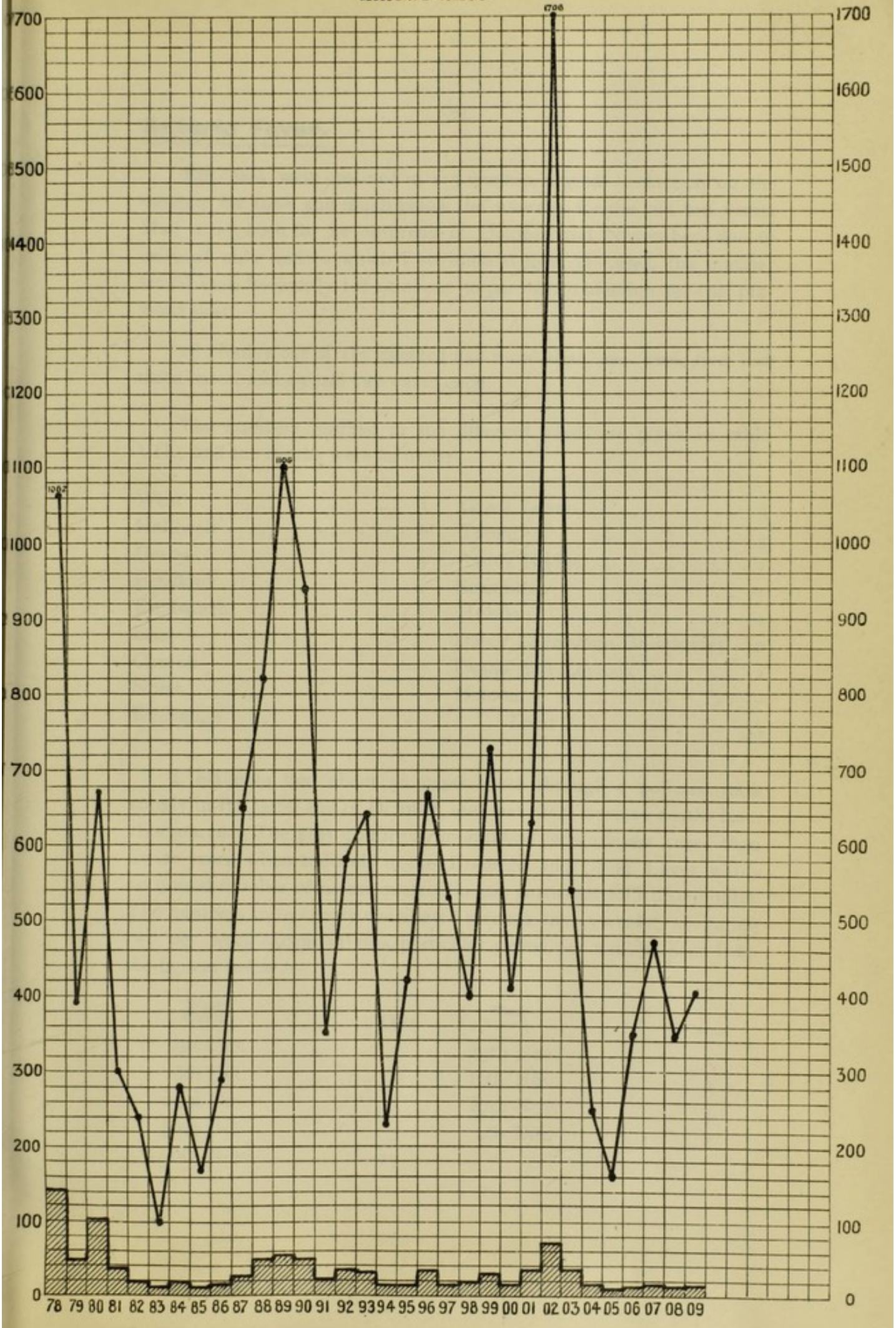
TABLE VIII.

Infectious Diseases Notified from 1880 to 1909.

Year	Small-pox	Scarlet	Diph-theria, Memb Croup	Enteric	Con-tinued	Typhus	Puer-peral	Cholera	Erysi-pelas	Relap-sing	Total	Rate per 1000 of pop'tion	Total ad-mitted to Hospital
1880 .	18	702	5	102	13	17	3	...	...	...	860	8·0	...
1881...	9	320	5	98	1	24	10	2	...	...	469	4·4	...
1882...	267	259	19	77	...	30	3	...	...	...	655	6·1	...
1883...	3	193	9	75	4	9	3	1	...	...	207	1·9	...
†1884...	13	303	11	152	1	6	3	4	...	...	493	4·5	62
1885...	6	186	8	57	...	...	4	...	...	...	261	2·3	120
1886 ..	...	322	18	60	...	3	3	...	...	...	406	3·6	208
1887...	...	721	22	107	...	2	1	...	...	...	853	7·5	296
1888...	11	924	51	180	...	2	4	...	...	...	1172	10·3	289
1889...	4	1256	92	125	2	16	...	...	...	...	1495	13·0	309
1890...	...	1071	74	101	1	15	4	..	...	...	1266	10·9	273
1891...	...	411	93	145	...	16	5	...	...	...	670	5·8	113
1892..	1	683	112	97	1	2	8	1	...	...	905	7·7	158
1893...	44	747	123	170	...	2	4	...	...	...	1090	9·2	202
1894...	2	267	25	117	1	...	16	...	...	...	428	3·6	136
1895...	10	495	34	237	1	...	7	...	...	...	784	6·5	168
1896...	1	816	29	186	...	...	10	...	...	...	1042	8·6	293
1897...	...	645	17	125	...	...	8	...	..	...	795	6·5	261
1898...	...	487	27	208	...	...	2	...	...	...	724	5·9	316
*1899..	...	1226	52	321	...	...	12	...	...	...	1611	9·9	567
1900...	1	644	56	208	...	...	9	...	13	1	932	5·6	482
1901...	...	1066	91	219	...	...	8	...	28	...	1412	8·3	639
1902..	63	2910	202	192	4	...	14	...	71	...	3456	20·2	1266
1903...	55	971	142	178	2	..	15	...	85	...	1448	8·3	619
1904...	19	477	150	158	2	...	9	...	69	...	884	5·0	347
1905 .	2	292	103	164	1	...	5	...	78	...	645	3·6	261
1906 .	...	630	84	197	...	...	9	...	123	...	1043	5·7	472
1907..	...	866	79	135	...	...	18	...	89	...	1187	6·4	627
1908...	...	637	76	190	2	...	10	...	84	...	999	5·3	481
1899 to 1908	**14·0**	**971·9**	**103·5**	**196·2**	**1·1**	...	**10·9**	...	**64·0**	**·1**	**1361·7**	**7·8**	**576·1**
1909...	5	760	95	133	...	...	4	...	105	...	1107	5·8	560

First Year Notification, 1878. † Isolation Hospital Established. * Borough Extended.

Cases and Deaths from Scarlet Fever per 100,000 inhabitants.



Enteric Fever.

138 cases were notified in 115 houses, a great reduction on the number for 1908 and much below the average for the last ten years. Had it not been for an outbreak in October and November, due to infected milk and to which I attribute at least 32 cases, the number would have been only 106 or about 50 per cent. reduction on the previous year,

18 Houses out of 115 infected had more than one case, five had three cases, and 13 had two cases each.

The numbers notified in the different wards are given in table VII., and the deaths were as under:—

West	3	Great Lever	3
Halliwell	6	Tonge	3
Derby	3	Astley Bridge	1
Bradford	6	Smithills	1
Rumworth	—	Hulton	1
East	2	Darcy Lever-cum-Breightmet	2
Church	—	Deane-cum-Lostock	2
North	—	Heaton	—
Exchange	—	Total	33

I estimate that about 32 cases arose through a polluted milk supply in the latter end of October, and that there were 10 deaths from this source. The year up till this month had shown fewer cases than for 20 years, when suddenly in the Bradford and Great Lever wards an unusal number of cases occurred in one particular milk distribution. The numbers were evenly distributed through the 53 weeks, averaging two per week except at this particular period, as will be seen from the figures below:—

Week Ending	Cases	Week Ending	Cases
9th Oct. ...	2	13th Nov. ...	4
16th Oct. ...	5	20th Nov. ...	2
23rd Oct. ...	3	27th Nov. ...	4
30th Oct. ...	5	4th Dec. ...	2
6th Nov. ...	17		

There was no doubt that the hevy incidence on a particular milk round pointed to infected milk but as the sources were various it was difficult at first to locate it. The dealers however, later on, supplied me with the information that at one of the farms, outside the Borough, from which the milk came, three cases of Typhoid Fever had occured and on inspection of the farm by permission of the Medical Officer of Health of the District, it was found as I had suspected that the water-supply from a well was liable to pollution and that the drainage of the farm itself was very defective.

The Sanitary Committee from the first took a very serious view of this outbreak and passed a resolution to this effect:—

> *Resolved*—That this Committee having considered the report of the Medical Officer of Health upon the recent outbreak of Enteric Fever are satisfied that it was due to the consumption of milk imported into the Borough, and recommend that all purchasers of milk should satisfy themselves that the sources of their supply are free from danger of contamination.

Fortunately outbreaks of Enteric Fever as a result of polluted milk or polluted water are rare in Bolton; but this one only shews again as others have done the importance of control of the milk supply from its source to it distribution.

Enteric Fever.—Cases and Deaths per 100,000 inhabitants.

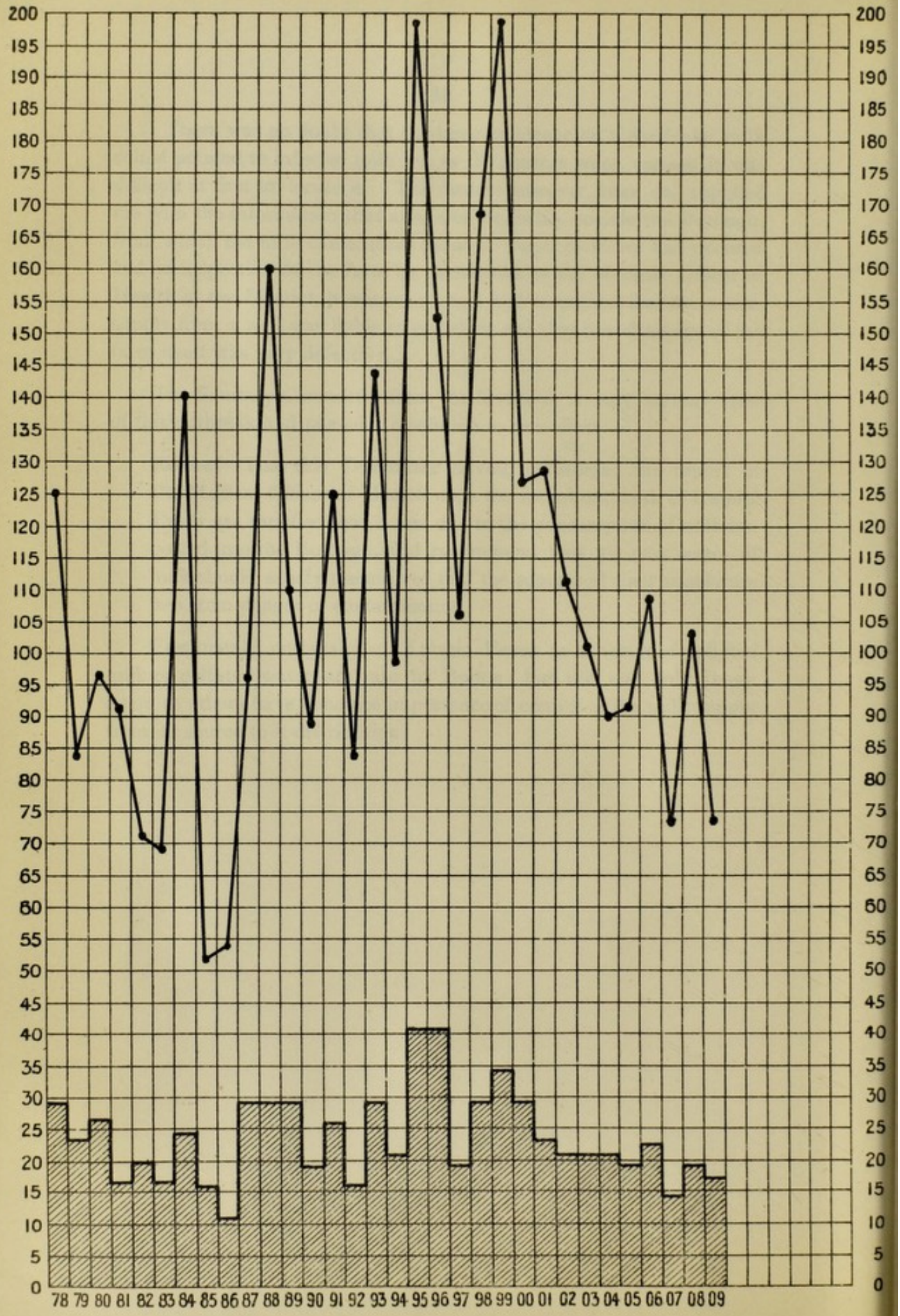


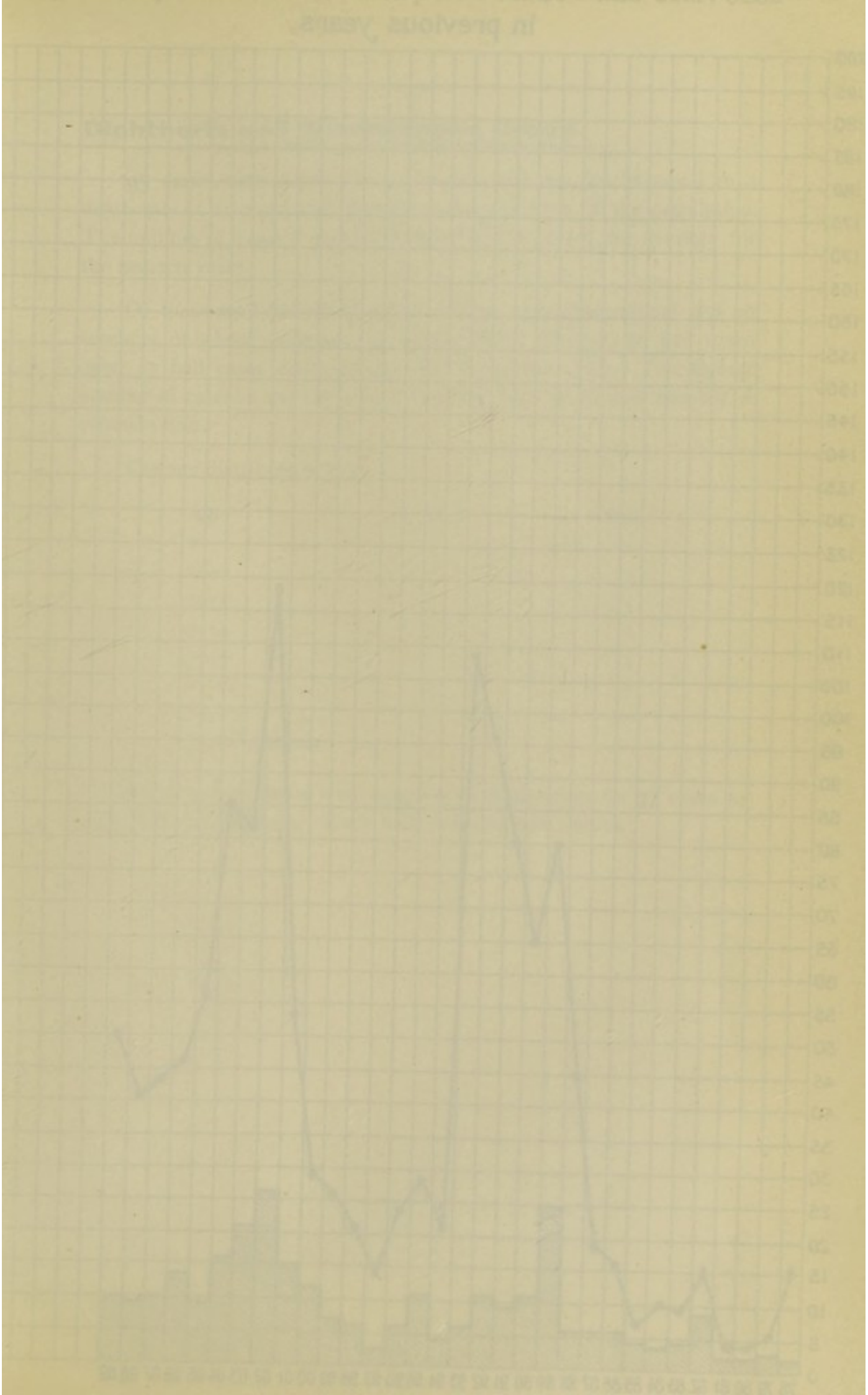
TABLE IX.

CASES OF ENTERIC FEVER REPORTED IN EACH MONTH DURING THE LAST FIVE YEARS COMPARED WITH 1909.

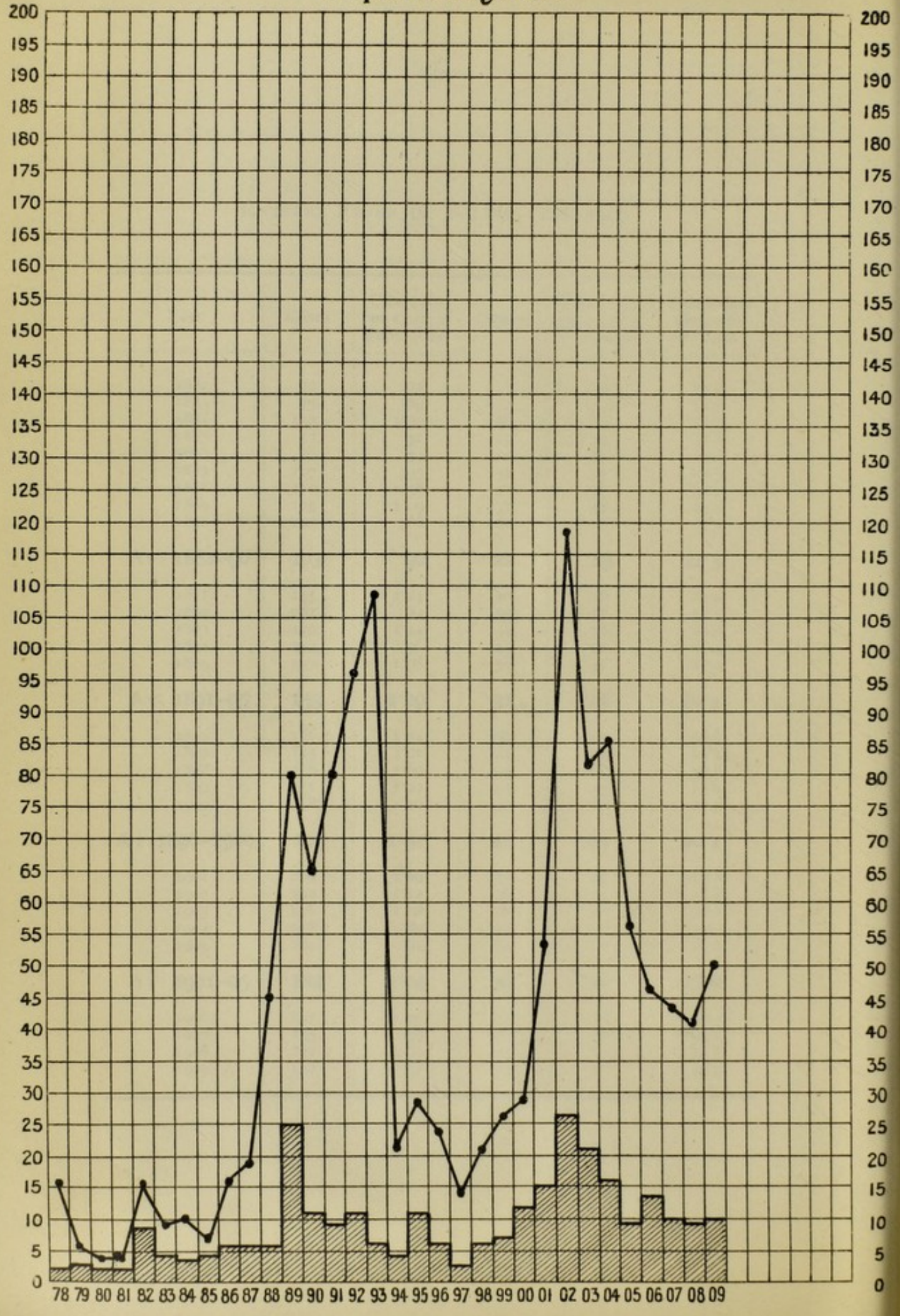
Month	1904	1905	1906	1907	1908	Average	1909
January	9	22	19	15	15	16·0	17
February ...	10	12	13	4	6	9·0	20
March	5	15	13	11	11	11·0	10
April	11	6	15	8	5	9·0	8
May	6	8	15	4	12	9·0	10
June	6	3	9	10	12	8·0	5
July	7	11	5	8	15	9·2	1
August	18	11	10	18	22	15·8	7
September ...	14	19	16	13	26	17·6	7
October	29	19	24	21	22	23·0	15
November ...	21	17	33	15	22	21·6	28
December ...	22	21	25	8	24	20·0	10
Total	158	164	197	135	192	169·2	138

Enteric Fever in Bolton, 1882-1909.

Year	Cases	Case-rate per 1,000 of Population	Deaths	Death-rate per 1,000 of Population	Death-rate per cent. of Cases
1882	77	·72	17	·15	22·0
1883	75	·69	17	·15	22·6
1884	152	1·39	26	·23	17·1
1885	57	·51	17	·15	29·8
1886	60	·53	12	·10	20·0
1887	107	·95	31	·27	28·9
1888	180	1·58	31	·27	17·2
1889	125	1·09	31	·27	24·8
1890	102	·88	22	·18	21·5
Av. 1881-90	**103**	**·92**	**22**	**·19**	**22·3**
1891	145	1·24	30	·26	20·6
1892	97	·83	19	·16	17·5
1893	170	1·44	34	·28	20·0
1894	117	·98	25	·20	21·3
1895	237	1·98	50	·41	21·0
Av. 1891-95	**153**	**1·29**	**31**	**·26**	**20·4**
1896	186	1·54	50	·41	26·8
1897	125	1·02	24	·20	19·2
1898	208	1·69	35	·28	16·8
1899	321	1·97	55	·33	17·1
1900	208	1·26	47	·28	22·5
Av. 1896-1900	**209**	**1·51**	**42**	**·25**	**20·1**
1901	219	1·29	39	·23	17·8
1902	192	1·12	36	·21	18·8
1903	178	1·02	36	·20	20·2
1904	158	·89	37	·21	23·4
1905	164	·92	34	·19	20·7
Av. 1901-05	**182**	**1·04**	**36**	**·20**	**20·1**
1906	197	1·09	40	·22	20·3
1907	135	·73	26	·14	19·2
1908	192	1·03	37	·19	19·2
1909	138	·77	33	·17	23·9



Case rates and Death rates per 100,000, for Diphtheria, in previous years.



Diphtheria and Membranous Croup.

95 cases were notified in 90 houses, with 20 deaths, equal to a death-rate of 21·0 per cent of cases, or ·10 per 1000 of the population. The number of cases is greater than 1908, but below the average for the last ten years.

Of those notified only 45 were children attending school and 29 contacts of school children. 36 schools were affected; 18 had cases only, 13 had cases and contacts, and 5 contacts only. The highest number of cases in any one school was four, and the highest number of contacts four.

The age distribution was:—

Age.	Number.	Deaths.
0—1	—	—
1—2	7	2
2—3	10	3
3—4	15	7
4—5	11	3
5—10	28	5
10—15	9	—
15 and upwards	15	—

78 bulbs of antitoxin were supplied on application, for **37** cases to 20 medical practitioners. Each bulb contains 2,000 units.

Measles and Whooping Cough,

Having been practically free from measles during 1908, the biennial epidemic recurred during 1909, but judging from the death-rate it was one of the mildest experienced, as only 41 deaths occurred. The epidemic reached its height during March, April, and May, and rapidly subsided after that date.

Of those who died 10 were under one year of age, 28 between one and five, and three over five years of age.

In order to prevent the spread of the disease 36 infants departments were closed.

There were 34 deaths from Whooping Cough compared with 82 in 1908, the deaths being evenly distributed through the weeks of the year. It never assumed an epidemic form.

Diarrhoea.

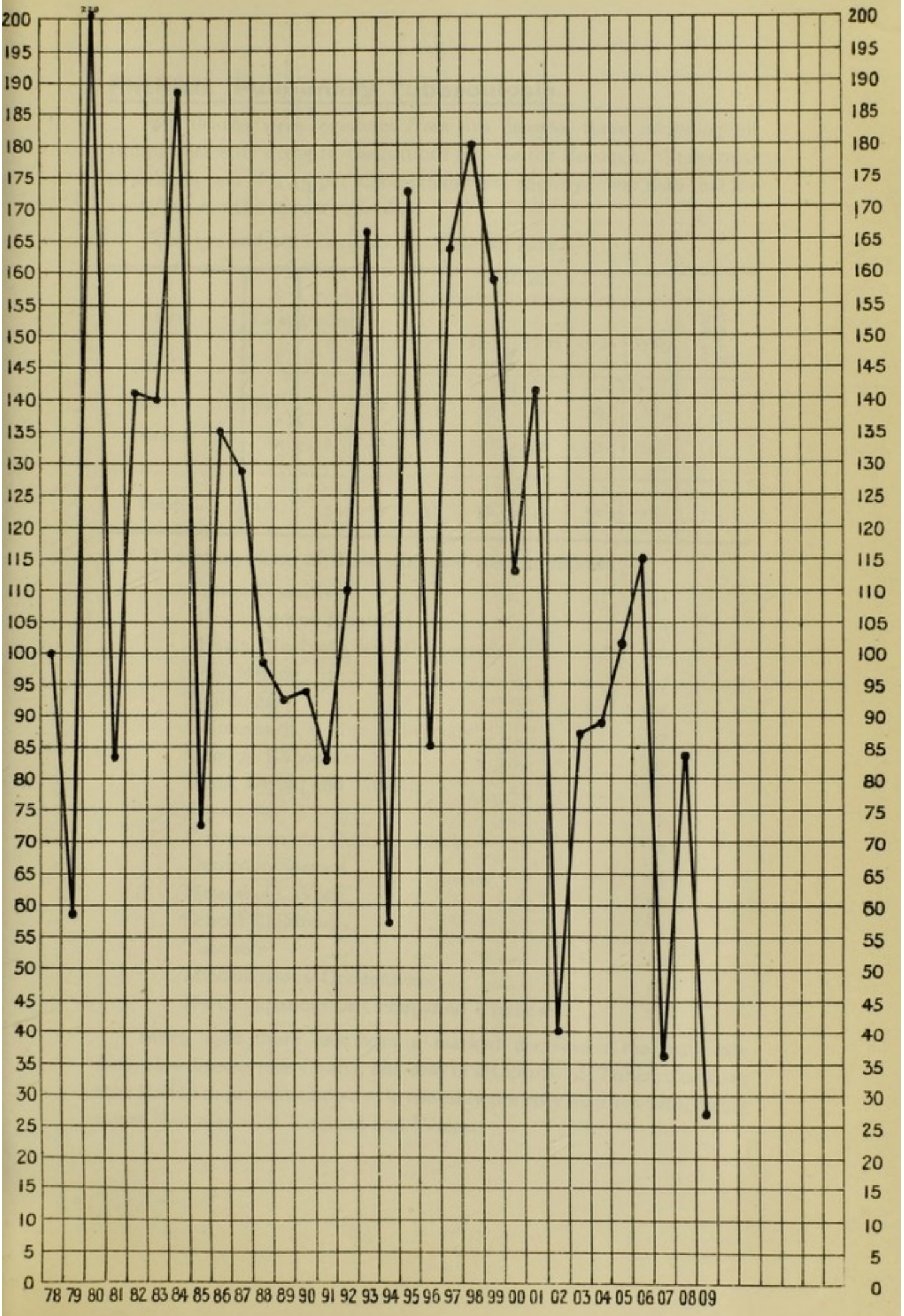
Only 51 deaths from epidemic summer Diarrhœa were registered equal to a death-rate of ·27 per 1000, the lowest recorded.

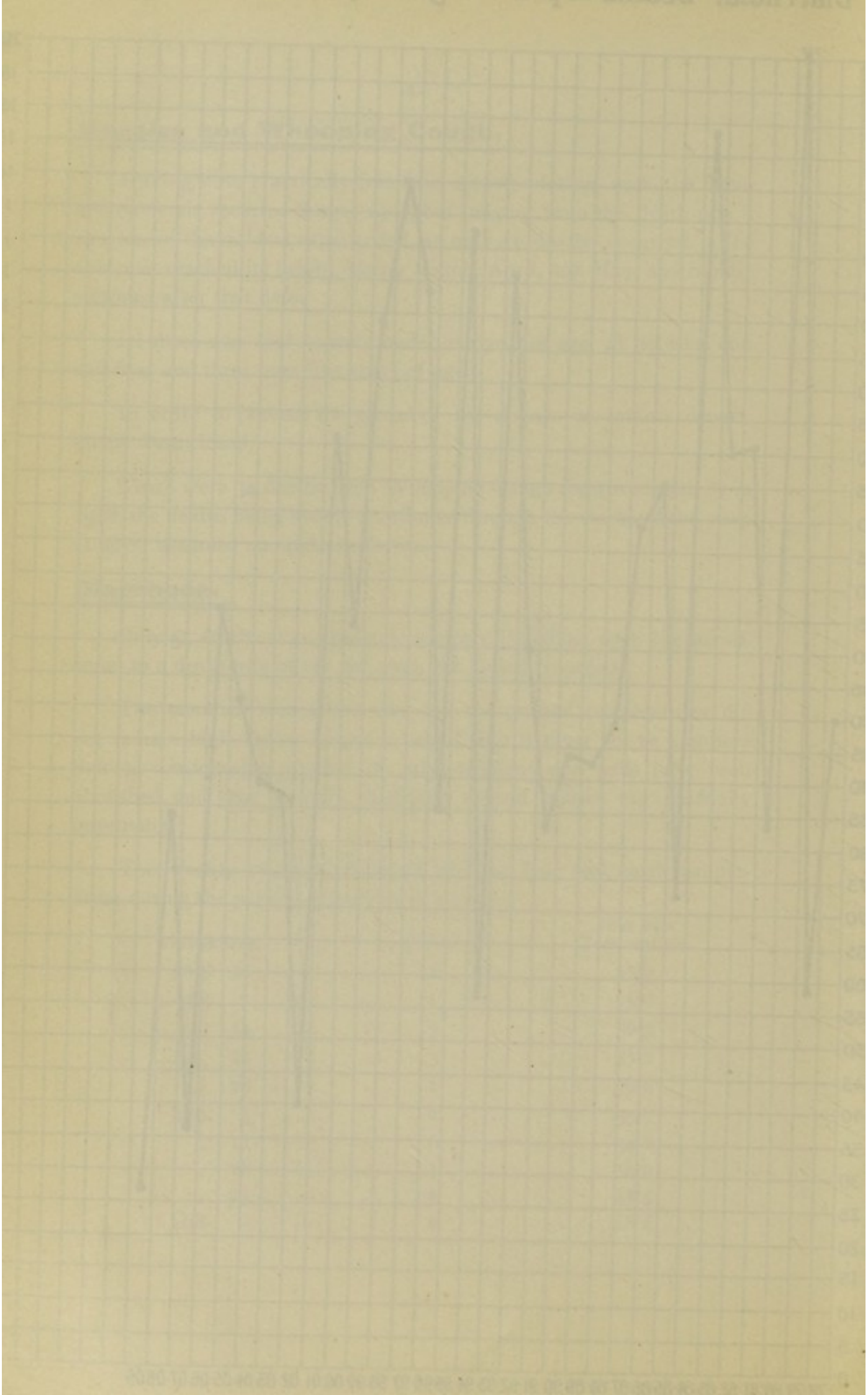
The summer was a wet one and the ground temperatures did not remain high for so longer a period, but it must not be forgotten that a considerable number of privy-middens and pails have been abolished and that sanitary conditions around houses are gradually improving.

The weekly number of deaths and the four feet earth temperature during the period of prevalence were:—

Week ending.	Deaths.	Four Feet Temperature.
July 31	4	55·0
Aug. 7	1	55·0
„ 14	3	56·3
„ 21	3	57·2
„ 28	1	56·6
Sep. 4	2	55·7
„ 11	6	54·8
„ 18	4	54·0
„ 25	4	53·5
Oct. 2	4	53·3

Diarrhœa.—Deaths in previous years per 100,000 inhabitants.





Phthisis (Pulmonary Tuberculosis.)

216 deaths were registered from this disease, these including all Bolton residents dying in Institutions outside the Borough. It is equal to a death-rate of **1·15** per 1,000 inhabitants slightly lower than that for 1908, but not the lowest recorded.

The age and sex distribution are shewn here :—

Sex.	Total	AGES.							
		Under 5	5-15	15-25	25-35	35-45	45-55	55-65	65 and upwards
Male	132	...	2	13	28	28	39	18	4
Female	84	3	2	18	28	15	13	...	5
Totals.....	216	3	4	31	56	43	52	18	9

The occupations of those who died were as follows :—

Cotton Operatives	44
Bleaching and Printing	8
Metals, Machines, and Implements ...	26
Coal Mining	7
Buildings	14
Conveyance of Men and Goods	12
General Labourers	20
Food, Drink, and Tobacco	6
Dress, etc.	6
Commercial or Business Clerks	2
Domestic Service	5
Household Work	30
School Children...	1
Teachers	2
Miscellaneous Occupations	12
No Occupations or Occupation Unknown ...	21

Since 1900 there has been a marked decrease in the death-rate from this disease (see Chart), and also in all forms of Tuberculosis, so that Bolton at present compares favourably not only with manufacturing towns, but also with England and Wales.

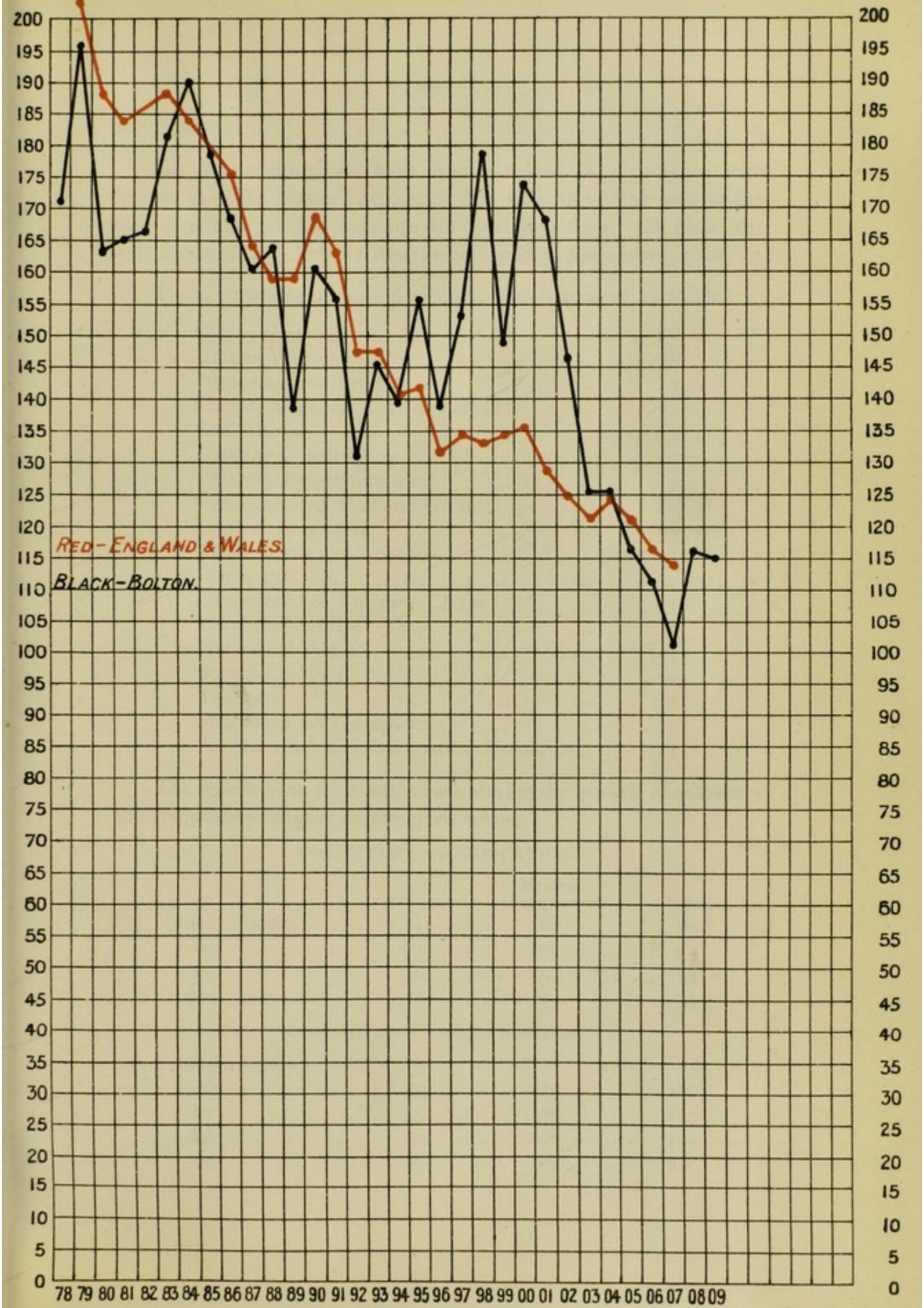
Death-rates per million inhabitants from all forms of Tuberculosis for England and Wales and large Lancashire towns, 1903-1907.

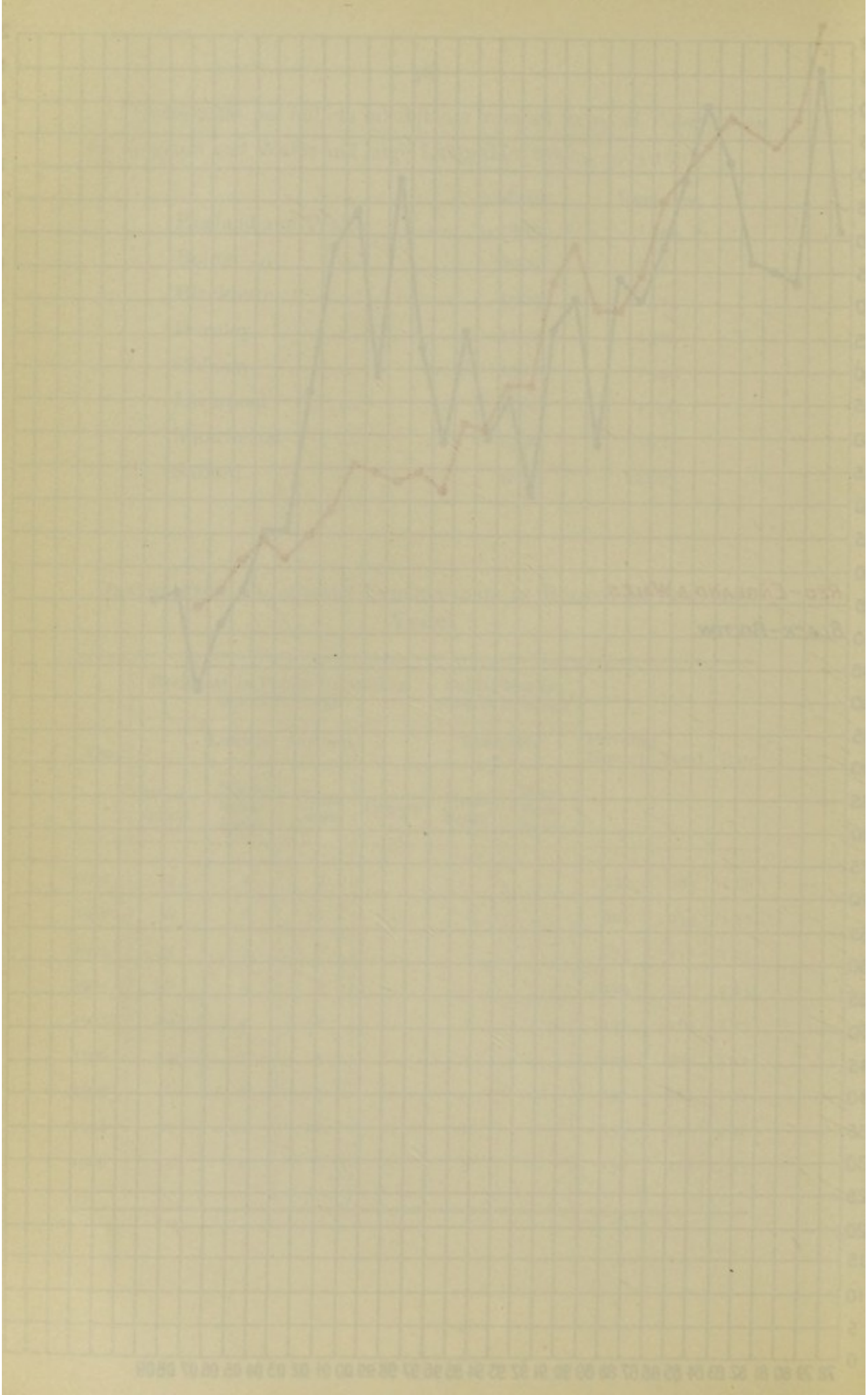
	Males.	Females.
England and Wales ...	1936	1444
Bolton	2004	1321
Blackburn	1963	1325
Burnley	2142	1504
Oldham	2512	1545
Liverpool	2566	1746
Manchester	2996	1864
Salford	3027	1883

Deaths from Pulmonary Tuberculosis in Bolton in Previous Years.

Year	Residents in Public Institutions out of Borough				Public Institutions in Borough		Private Houses	Total	Rate
		Lunatic Asylums			Infirmary				
	Work-house	Work-house Cases	Other Cases	Others	Resi-dents	Non-Resi-dents			
1901	43	2	4	...	...	...	236	285	1·68
1902	36	2	11	1	2	...	201	253	1·47
1903	34	3	6	1	1	1	173	218	1·25
1904	20	4	8	...	...	...	189	221	1·25
1905	22	4	10	...	3	...	171	210	1·17
1906	19	1	5	...	2	...	175	202	1·11
1907	40	6	5	...	...	...	135	186	1·01
1908	52	...	10	...	1	...	153	216	1·16
1909	53	2	6	...	3	...	152	216	1·15

Phthisis.— Deaths per 100,000 inhabitants in previous years.





NOTIFICATION.

240 first notifications have been received in accordance with Section 52 of the Bolton Corporation Act, 1905, this being next to the highest number reached since the Act came into force. Of these 181 were received from Private Practitioners, and 59 from Institutions.

The occupations of those notified as suffering were as follows:—

Cotton Spinning	25
Cotton Weaving	28
Bleaching and Printing	7
Metals, Machines and Implements ...	21
Coal Mining	4
Building Construction	9
Painters, Decorators, etc.	3
Conveyance of Men and Goods	10
General Labourers	25
Food, Drink and Tobacco	5
Dress, etc.	4
Commercial or Business Clerks... ...	2
Domestic Service	7
Household Work	43
School Children	10
Teachers	2
Miscellaneous Occupations	21
No Occupation or Occupation Unknown...	14

The details as to notification both during the periods of voluntary and compulsory notification are given below.

VOLUNTARY NOTIFICATION.

Year.	Institutions.	Medical Practitioners.	Total.
1902 (6 mos).	14	66	80
1903 ...	17	75	92
1904 ...	38	56	94
1905 (9 mos). ...	11	43	54

COMPULSORY NOTIFICATION.

1905 (3 mos). ...	19	76	95
1906 ...	43	219	262
1907 ...	55	140	195
1908 ...	40	162	202
1909 ...	59	181	240

The average stay in the Sanatorium has been 111 days per patient.

History of the Preventive Measures.

The following extracts are from a report made at the request of the Local Government Board, who wished to be furnished with details as to the operation of the powers of Section 52 of the Bolton Corporation Act, 1905, above referred to, the Corporation having applied for an extension of those powers. I have omitted however, those statistics already given in this part of the report.

The history of the movement for the prevention of this disease in Bolton dates from July, 1901, when an International Congress on Tuberculosis was held in London under the patronage of the King. The Bolton delegates to that Congress made a report to the Bolton Town Council which impressed them with the necessity of taking early and active measures for the prevention of the spread of the disease.

On 3rd March, 1902, the Sanitary Committee appointed a Tuberculosis Sub-Committee to take the matter into consideration.

In July, 1902, voluntary notification of phthisis was adopted by the Town Council in accordance with the following resolutions:—

1. That a fee of 2/6 be paid for the first notification by a private practitioner, and 1/- for those notified from public institutions.
2. That a fee of 1/- be paid for the notification of change of address of a case previously notified.
3. That a register be kept of the names and addresses of those notified.
4. That inspection of infected homes be made.
5. That disinfection of houses be made at the cost of the Corporation on the death of the patient or at the request of the Medical Attendant.
6. That leaflets of instructions be distributed.
7. That the Mayor be requested to call a private meeting of influential members of the community to consider the question of providing a Sanatorium for Consumptives.

29th April, 1903, the then Mayor presided at a conference of the Bolton Town Council and neighbouring Authorities, and the following resolution was passed:—

> "That this meeting considers the provision for Bolton and its neighbourhood of a Sanatorium for Consumptives highly desirable and pressingly needful, and that the Bolton Corporation should take steps for carrying out such provision and invite contributions towards that object from public bodies, societies, and others interested in its attainment."

In my annual report for 1903 I drew attention to the compulsory notification clause of the Sheffield Corporation Act and recommended Bolton to obtain a similar one. This was done in the Bolton Corporation Act of 1905, there being no local opposition either from medical practitioners or the general public. It came into force on October 9th, of the same year.

In November, 1905, arrangemements were made with the Director of the Public Health Laboratory of Manchester University for the examination of the sputa of phthisical patients at the cost of the Corporation in those cases where the patient cannot afford to pay.

The Tuberculosis Sub-Committee of the Sanitary Committee having visited some twenty sites in the neighbourhood of Bolton, but not finding any of these suitable, entered into negotiations with the Authorities of the Westmorland Consumption Sanatorium, Meathop, Grange-over-Sands, and contracted for the use of four beds for Bolton patients in the early stage of the disease at a cost of £80 per bed per year under the usual conditions. The first cases were admitted on 20th July, 1906. Subsequently the Guardians of the Poor of this District secured two beds at the same Institution.

In January, 1908, four more beds were obtained by the Corporation, making eight in all, and the charge was increased to £90 per bed per annum.

At about the same time (December, 1907) Mr. Thomas Wilkinson J.P., of Bolton, recognising the needs of poor consumptives conveyed to Trustees his house and seven acres of land adjoining, in one of the best parts of Bolton, together with a sum of £50,000 as endowment.

The alterations and extensions are nearly complete, a matron has already been appointed, and it is understood that early next year it will be opened for the treatment of twenty-five patients.

In 1905 a Guild of Help was formed with 450 helpers, and this has been a great assistance to the Local Authority in many ways. Patients' expenses are paid to and from the Sanatorium, the homes are visited and help is given both in food and money, where required. Advice is given both generally and as to precautions to be taken to prevent the spread of the disease and to assist in the cure.

13th October, 1909, the Sanitary Committee passed a resolution requesting the Finance Committee to make application to the Local Government Board for sanction to borrow £6,000 for the erection of a Consumption Pavilion for twenty-four patients at the Borough Hospital.

ADMINISTRATIVE MEASURES.

Although disinfection of infected houses and articles of clothing occasionally took place before 1902, the year of voluntary notification, active measures began only then. These consist of disinfection of houses after death of the patient, enquiry as to the history of the disease, the issue of leaflets and pamphlets containing advice and instructions. The following is a copy of the letter sent by the Medical Officer of Health to Medical Practitioners at that date:—

Dear Sir,

The Council of the County Borough of Bolton has adopted the system of voluntary notification of Tubercular Phthisis (Pulmonary Tuberculosis), and I have been requested to ask you to notify to me any cases occurring in your practice. A fee of 2/6 will be paid for each case notified by a Private Medical Practitioner, and 1/- for cases reported by a Medical Officer on behalf of a public body or institution.

On receipt of notification, a visit will be made to the house to obtain information as to the sanitary conditions, and to ascertain what precautions are necessary to prevent the spread of the disease. Every endeavour will be made to act in agreement with the Medical Attendant, but in case you object to a visit being made, an enquiry form will be sent to you.

Disinfection after death or removal, will be carried out at the cost of the Corporation, and leaflets will be supplied to you on application to me.

Yours faithfully,

JOHN E. GOULD,

Medical Officer of Health.

Sanitary Department,
Town Hall, Bolton,
4th July, 1902.

The arrangements made for the use of eight beds at Meathop Sanatorium have enabled us to send to that Institution sixty-two patients since July 1906, when the first case was admitted, with the following results up-to-date, 31st December, 1909:—

	1906.	1907.	1908.	1909.	Total.
Total Admitted and Discharged	3	12	21	26	62
Arrested ...	1	7	9	12	29
Improved ...	1	—	9	8	18
Slightly Improved	—	3	—	1	4
Not Improved ..	1	2	3	5	11

It must be remembered, however, that less than 10 per cent. were in the earliest stages of the disease.

The Guardians have also use of two beds at the same Sanatorium and have made special arrangements for treating phthisical patients at the Poor Law Infirmary and for increased relief for those remaining at home.

During the last few years, at times when there was not great pressure on the beds at the Bolton Borough Hospitals for infectious diseases, phthisical patients have been admitted for a time. In all eight have been treated with very good results.

The Wilkinson Sanatorium is nearly completed and if the present scheme of the Corporation comes to fruition, Bolton will have at its disposal—

10 beds at Meathop Sanatorium.
25 beds at Wilkinson Sanatorium.
24 beds at Bolton Borough Hospital.
beds at Bolton Poor Law Infirmary.

This should be sufficient for the needs of a population of 190,000, especially if the Convalescent Homes in the neighbourhood are taken into account, and the death-rate from the disease continues to decline.

General Observations.

Voluntary as well as compulsory notification of this disease has been of the greatest use, not only enabling us to collect information but also to draw the attention of the Town Council, Philanthropic Bodies, and the general public to the dangers of the disease, the means to be adopted for its prevention and the general conditions under which it develops. There is no doubt, however, that the compulsory section has been the most powerful for good, as will be seen from the number of notifications. Moreover, not only has no complaint reached me as to its operation but several medical practitioners have assured me that it has got them out of obvious difficulties. Enquiries should be tactfully made and if the medical attendant objects he should be asked to fill up an enquiry form. This has been invariably done with the happiest results.

It has stimulated the activity of the Sanitary Committee in the demolition of insanitary areas, they well knowing that the congested areas are the breeding places of the disease.

Notification has shewn that the incidence in the central parts of the Borough was much greater than in the surrounding districts.

Five years, however, is but a short period in the life of an Act of Parliament, and especially in the case of pulmonary tuberculosis which is often chronic in character. Even as an experiment 10 years may be counted short enough to determine the benefits, of which however, I have no doubt. If the experiment proves as beneficial in other towns as it has in Bolton I am strongly of opinion that it would be wise to make the notification compulsory over the whole country, or at all events until such time as the disease is eradicated from our midst.

Bacteriological Examination.

The following specimens were sent to the Public Health Laboratory, Owens College, Manchester, during the year for examination, and with the results as tabulated :—

Specimen.	Positive Result.	Negative Result.	Total.
Blood from Enteric Fever	26	50	76
Sputum of Phthisis	24	54	78
Swab from Diphtheria	8	10	18
	58	114	172

Isolation of Infectious Diseases.

The admissions to the Borough Hospital for Infectious Diseases at Deane were as follows :—Scarlet Fever, 475 ; Enteric Fever, 63 ; Diphtheria, 3; Pulmonary Tuberculosis, 3 ; other diseases, 16 ; a total of 560. There was an increase of 97 Scarlet Fever cases, and a decrease of 30 Enteric Fever cases on the previous year. Four persons suffering from Small-pox were isolated at the Bury and Joint Hospital Board's Hospital at Ainsworth.

Sixty-two per cent. of the Scarlet Fever cases, and 45 per cent. of all Enteric Fever cases which were notified were therefore treated at the Corporation's Hospital.

The death-rate for Scarlet Fever cases was 3·1 per cent. and 13·8 for Enteric Fever.

Twenty-six consumptive patients were also sent to Meathop Sanatorium at the Sanitary Committee's expense, and details are given in that part of the report dealing with Pulmonary Tuberculosis.

There was one addition to the staff during the year owing to the appointment of a night sister. It is now constituted as under :—

1 Matron.
4 Sisters.
1 Staff Nurse.
1 Ambulance Nurse.
9 Probationers.
4 Wardmaids.
4 Laundresses.
5 Servants.
2 Gardeners.
2 Porters.

Two members of the female staff contracted Enteric Fever, and one died. There was no other case of serious illness and in other respects the health of the staff was excellent.

The laundry in the Western Hospital has been reconstructed and enlarged, and fitted with up-to-date apparatus driven by steam power. It has proved a most useful and economical improvement and greatly adds to the efficiency of the Hospital.

The Hospitals are well and economically managed by Miss Webb, the Matron, and she has been well supported by a staff conspicuous for their devotion to their duties and their sympathy for the patients.

I am much indebted to Dr. Moffatt, the Deputy Medical Officer of Health, for relieving me of much work in connection with the Hospitals and especially for his assiduous care and attention to the patients.

SECTION III.

Sanitary Work.

Abstract of Sanitary Work.

PLACES UNDER INSPECTION :—

Common Lodging-houses	61
Houses Let-in Lodgings	80
Factories	341
Factory Chimneys	257
Workshops and Workplaces	634
Bakehouses	244
Public houses	388
Offensive Trades	36
Slaughter houses	52
Cowsheds	345
Milkshops	482
Public Sanitary Conveniences	18
Travelling Vans	103

ABSTRACT OF WORK DONE DURING 1909 :—

Complaints from Public	223
Nuisances Reported	2879
Letters Written or Verbal Notices	1891
Informal Notices Issued	1016
Legal Notices Issued	311
Smoke Observations	509
Smoke Nuisances Reported	4
Smoke Notices Served	4
Smoke Prosecutions	0
Rooms Fumigated	2216
Articles Disinfected	4275
Articles Destroyed	152
Houses, etc., Limewashed	250
Houses Demolished	111
Houses Closed	17
Houses Made Fit	87
Privy Ashpits Converted into Water Closets	897
Privy Ashpits Demolished	90
Drains Reconstructed	341
Houses in which Rubble Drains have been Abolished	94
Yards Completely Flagged	47
Samples of Food, etc., Purchased	402
Samples Adulterated	19
Adulteration Prosecutions	8

Public Health and Medical Inspection Staff.

1 Medical Officer of Health and School Medical Officer.
1 Deputy Medical Officer of Halth and Assistant School Medical Officer.
1 Public Analyst (Part time).
1 Veterinary Inspector (Part time).
1 Food and Meat Inspector.
6 Sanitary Inspectors.
5 Clerks.
2 Health Visitors.
2 School Nurses.
3 Ambulance Drivers and Disinfectors.
2 River and Urinal Cleaners.
10 Bath Officials.
5 Lavatory Attendants.
33 Hospital Staff (excluding Ainsworth Small-pox Hospital).

Housing of the Working Classes.

During 1909, of the unfit class of house, there were demolished 111, closed 17, and made fit 87; i.e., a total of 215; of these 119 were back-to-back, and 16 single houses.

Back-to-back and single, or 1, 2, and 3 roomed tenements :—

Year.		No. of Houses.
1891	Census Returns	3051
1896	Public Health Office Enumeration	2064
1901	Census Returns	2558
1903	Public Health Office Enumeration	2193
1904	„ „ „	2075
1905	„ „ „	2012
1906	„ „ „	1977
1907	„ „ „	1904
1908	„ „ „	1764
1909	„ „ „	1629

The number of back-to-back and single houses in wards is given in Table II.

Table I shows the work done in improving the working class houses during the last 36 years.

The amount expended, chiefly in demolitions, up to the end of 1909, was as follows:—

	£
1874-1885	6775.
1886-1895	1637.
1896-1905	7648.
1906-1909	17725.

TABLE I.

Abstract of Houses Demolished, Closed, Made Fit or Improved (1874 to 1909).

Date	Demolished	Closed	Made Fit	Improved	Total
1874—1885	...	...	...	...	293
1886—1895	...	...	...	...	245
1896	23	9	10	29	71
1897	85	14	24	21	144
1898	17	11	8	...	36
1899	22	7	3	...	32
1900	59	44	8	...	111
1901	42	22	79	...	143
1902	18	18	19	...	55
1903	85	20	19	42	166
1904	52	3	46	...	101
1905	39	9	10	10	68
1906	69	17	17	...	103
1907	43	65	24	...	132
1908	124	43	43	...	210
1909	111	17	87	...	215
	789	299	397	102	1587

TABLE II.

Enumeration of Back-to-Back and Single House in Wards.

1909.

Ward.	Without Available Yard Space.		With Available Yard Space.		Total. 1909.	Total. 1903.
	Back-to-Back	Single	Back-to-Back	Single		
East	57	38	74	15	184	476
Derby	58	20	214	2	294	373
Bradford	83	43	181	24	331	379
Exchange	64	91	96	30	281	361
West	31	42	67	39	179	203
Church	2	7	97	4	110	119
Halliwell	...	6	20	46	72	76
North	6	1	...	3	10	10
Rumworth	6	...	...	4	10	11
Astley Bridge	...	3	14	29	46	71
Smithills...	...	3	17	27	47	47
Darcy Lever-cum-Breightmet ...	...	...	14	4	18	18
Tonge	...	...	43	4	47	47
Deane-cum-Lostock ..	...	...	...	...	...	2
Total	307	254	837	231	1629	2193

Closet Accommodation.

During the year 1909 there were 897 conversions of old privy-middens or pails into water-closets, and 90 demolitions of the same type of closet in connection with insanitary property.

From 1899-1909 inclusive, 6404 closets have been converted at a cost to the Corporation of £12701, and replaced by water-closets, and 250 have been demolished.

In public-houses during the same period 105 water-closets were added for customers; in the Public Elementary Schools 94 have been provided, and 868 fresh-water closets and 129 pails in factories and workshops, where also 33 cesspools were abolished.

That is in eleven years, a total of 7471 closets have been provided on the water-carriage system, in addition to those provided in new houses, viz., 6179.

The present number of privy-middens and pails as compared with those of 1898 are :—

District.	Privy-middens.		Pails.	
	1898.	1909.	1898.	1909.
Old Borough ...	12740 ...	7779 ...	6782 ...	6434
Added Area ...	7581 ...	6335 ...	22 ...	26
Whole Borough ...	20321 ...	14114 ...	6804 ...	6460

In the Old Borough in 1898 the numbers were;—

Privy-middens and Pails	19522
Water-closets	7587

At present the numbers are :—

Privy-middens and Pails	14213
Water-closets	14672

Formerly in the Old Borough 75 per cent. were on the dry system and 25 per cent. on the water-carriage system, now 49 per cent. are on the dry system and 51 per cent on the water-carriage system.

Closets in Public Houses

Of the 388 public-houses in the Borough, 381 have two or more closets and seven have only one closet. The figures for 1908 were:— 380 with two or more closets and eight with one closet. Of these latter one has provided sufficient accommodation.

During the year five privy-middens were converted into fresh-water-closets, and one fresh-water closet was added to make up an insufficiency, i.e., total six fresh-water closets.

Of the seven public-houses having only one closet:—

Six are on the privy-midden system (one in the Old Borough and five in the Added Area).

One is on the fresh-water system. (Old Borough).

The 381 public-houses having two or more closets are divided up as follows:—

266 have two or more water-closets.

75 have at least one water-closet and one privy-midden or pail.

40 have two closets on the dry system (privy-midden or pail)

In other words 69·8 per cent. are wholly on the water-carriage. system, 89·5 per cent. have at least one water-closet and 10·5 per cent. are on the dry system.

During the last eleven years (1899-1909), 299 fresh-water closets and ten waste-water closets have been provided generally in place of insanitary privy-middens and pails in public houses.

TABLE III.

Closet Accommodation, 1909.

	No. of Closets Converted or Demolished, 1909.				Conversions in Old Houses and Additions in New Houses, 1909.				Present Closet Accommodation, 1909.				Per Cent. on	
	P.M.	Pail.	W W.C.	F.W.C.	P.M.	Pail.	W.W.C.	F.W.C.	P.M.	Pail.	W.W.C.	F.W C.	Dry System.	Water System.
Old Borough ...	617	102	3	1	...	...	329	453	7779	6434	11022	3650	49	51
Great Lever ...	110	...	...	...	...	...	127	96	1364	...	1073	236	51	49
Tonge	22	...	...	...	...	...	41	35	1498	...	786	77	63	37
Astley Bridge ...	64	...	...	...	...	...	20	71	1067	7	499	385	54	46
Smithills	64	...	...	...	...	...	92	78	481	3	713	222	34	66
Hulton	1	...	...	...	...	...	57	25	624	...	581	63	49	51
Darcy Lever-cum-Breightmet ...	5	...	...	...	...	...	12	17	652	...	173	72	72	28
Deane-cum-Lostock	...	...	...	...	...	...	21	15	420	4	209	88	58	42
Heaton	2	...	...	...	...	...	7	37	229	12	152	295	35	65
Extended Borough	885	102	3	1	...	...	706	827	14114	6460	15208	5088	50	50

Common Lodging Houses.

There are now 61 registered houses in Bolton, a decrease of two. Two houses were demolished, one closed, and one placed on the register during 1909. They are distributed thus :—

Ward.	Houses.	Rooms.	Beds.
Exchange	28	146	550
East	30	154	830
Church	2	14	58
Derby	1	10	43

All notices from the Sanitary Inspectors have been complied with, and there has been no contravention of the bye-laws.

Accommodation for the sexes :—

Description.	Houses.	Males.	Females.	Couples.
Males only...	39	1085	—	—
Couples only	2	—	—	9
Females and Couples	2	—	14	7
Males and Couples	8	113	—	21
Males, Females, and Couples ...	10	137	48	47
	61	1335	62	84

Houses Let-in-Lodgings.

During the year 1909, 30 houses have been placed on the register, and three houses closed, thus making a total of 80 registered houses in the Borough. They are distributed in the wards thus :—

Exchange	52
East	18
Derby	10

The rooms let by these houses are as follows :—

1	house	lets	8 rooms.
1	,,	,,	7 ,,
9	houses	let	6 ,,
4	,,	,,	5 ,,
25	,,	,,	4 ,,
11	,,	,,	3 ,,
20	,,	,,	2 ,,
9	,,	,,	1 ,,

Canal Boats.

No boats that were used as dwellings came within the district of his Authority during the year 1909.

Vans, Tents, &c.

14 vans situated in Morgan Street, Astley Bridge, 22 vans on the Wholesale Market and Bridge Street were inspected in June; 53 vans on the Wholesale Market and Victoria Square, and 14 at Morgan Street during Christmas and New Year.

Factories.

59 complaints were received from Factory Inspectors during 1909, of which 49 referred to insufficient and unsuitable closet accommodation, and 10 to insufficient means of escape in case of fire.

During the year 56 fresh-water closets were provided in 17 factories in place of old and insanitary closets or as additions. In the eleven years 1899-1909, there have been provided 868 fresh-water closets and 129 pails.

Comparison of closet accommodation in factories in 1900 with that of 1909:—

Year.	No. of Factories.	F.C.W.	Pails.	P.M. Type.	Cesspools.
1900	260	1525	194	298	33
1909	341	2219	214	84	—

Workshops and Workplaces.

Six complaints were received from Factory Inspectors during 1909, referring to cleansing, limewashing, and ventilation, &c. The workshops, including bakehouses and laundries, number 878, the employees, 1915 males, and 1545 females.

The number and character of trades in workshops are :—

Trade.	No. in Trade.	Trade.	No. in Trade.
Bakers	... 244	Cycle Makers ...	... 5
Boot and Clog Makers	... 109	Brush Makers ...	... 5
Dressmakers ...	... 103	Shirtmakers, etc. ...	... 5
Millinery, etc. ...	... 66	Chemists	... 4
Tailors, etc. ...	... 50	Athletic Goods ...	... 4
Joiners, etc. ...	... 25	Rag Sorters	... 4
Cabinet Makers ...	... 20	Paper Dealers ...	... 4
Tinplate Workers ...	... 19	Leather Dealers ...	.. 3
Ice Cream Manufacturers	... 15	Bedding	... 3
Confectioners ...	... 14	Umbrella Makers ...	... 3
Plumbers	... 14	Tarpaulin Makers ...	... 3
Sadlers	... 11	Tripe Works ...	... 3
Drapers	... 10	Skip Makers	... 3
General Smiths ...	... 9	Window Blind Makers	... 2
Stocking Knitters ...	... 9	Clog Iron Makers ...	... 2
Watch and Clock Makers	... 8	Coach Builders ...	... 2
Laundries	... 8	Picture Framers ...	... 2
Wheelwrights ...	... 7	Masons	... 2
Coopers, etc. ...	... 7	Painters	... 2
Ironmongers ...	... 7	Sign Writers... ...	... 2
Horse-shoeing ...	... 6	Photographers ...	... 2
Chemical Works ...	... 6	Pickle Makers ...	... 2
Cotton-waste Warehouses	... 7	Bookbinders ...	... 2
Printers	... 5	Brass Founders & Finishers	1
		Miscellaneous	29

Bakehouses.

There are at present on the register 244 bakehouses, nine new ones having been added during the year, and ten closed, including an underground bakehouse.

Of these 24 are underground and certified in accordance with Section 99 of the Factories and Workshops Act, 1901.

Factory and Workshop Inspection.—1. Inspection.

Premises	Number of		
	Inspections	Written Notices	Prosecutions
Factories (including Factory Laundries) ...	369	11	.....
Workshops (including Workshop Laundries)...	926	52	.....
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	100	6	.....
Total	1395	69	.....

2. Defects Found.

Particulars	Number of Defects			Number of Prosecutions
	Found	Remedied	Referred to H.M. Inspector	
Nuisances under the Public Health Acts :—				
Want of cleanliness	42	42	...	...
Want of ventilation	11	11	...	...
Overcrowding	1	1	...	...
Want of drainage of floors	2	2	...	...
Other nuisances	30	30	...	...
Sanitary accommodation — insufficient ...	18	14	...	...
Sanitary accommodation — unsuitable or defective ...	50	37	...	...
Sanitary accommodation — not separate for sexes ...	7	6	...	...
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (s. 101)	...	...	...	...
Breach of special sanitary requirements for bakehouses (ss. 97 to 100)	6	6	...	...
Other offences (excluding offences relating to outwork which are included in Part 3 of this report)	...	...	...	...
Total	167	149	...	...

Factory and Workshop Inspection.—3. Home Work.

List of Outworkers (s. 107) :—	Number of Lists	Number of Outworkers
Lists received twice in the year	31	301
List received once in the year...	1	2
Addresses of outworkers forwarded to other Authorities..		8
Addresses of outworkers received from other Authorities..		2
Inspection of outworkers' premises		139

Home work in unwholesome or infected premises :—	Wearing Apparel	Other
Notices prohibiting home work in unwholesome premises (s. 108)	...	...
Cases of infectious disease notified in home workers' premises	1	...
Orders prohibiting home work in infected premises (s. 110)	...	...

4. Registered Workshops.

Workshops on the Register (s. 131) *at the end of the year* :—		Number
Important classes of workshops, such as workshop bakehouses may be enumerated here.	Bakehouses, including underground ...	244
	Other Workshops	634
Total number of Workshops on Register		878

5. Other Matters.

Class	Number
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (s. 133)	1
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5) ... Notified by H.M. Inspector	55
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5) ... Reports (of action taken) sent to H.M. Iuspector...	43
Other (Fire Escapes)	10
Underground Bakehouses (s. 101) :—	
Certificates granted during the year	...
In use at the end of the year	24

Cowsheds, Dairies, and Milkshops.

There are now 161 occupiers of farms with 345 cowsheds. Of these farms 131 are satisfactory, 26 are fairly satisfactory, and four are unsatisfactory. During the year improvements in the ventilation, lighting, &c., were carried out in several cowsheds, and one unsatisfactory cowshed was made satisfactory.

The registered milk sellers in the Borough number 482.

Offensive Trades and Slaughter-houses.

Two tripe boilers' premises were given up during 1909, and one hide and skin depot was registered, and these are the only changes since the last report.

TABLE IV.

OFFENSIVE TRADES AND SLAUGHTERHOUSES.

Trade.	Added Area.	West.	Halliwell.	Bradford.	Derby.	East.	Church.	North.	Rumworth.	Exchange.	Total.
Fellmonger, Tanner and Leather Dresser ...	...	1	...	1	...	...	...	...	...	...	2
Fellmonger and Tanner ...	...	...	...	...	...	1	...	...	...	...	1
Leather Dresser and Roller ...	...	...	...	...	...	...	1	...	...	1	2
Hide and Skin Depot ...	...	...	...	...	...	1	...	...	...	1	2
Knackers' Yard	...	...	...	...	...	...	1	...	...	...	1
Blood Boiler	...	...	...	1	...	...	1	...	...	...	2
Tallow Melter	...	...	...	...	...	...	...	...	...	1	1
Chemical Works	1	...	...	...	...	1	3	...	...	...	5
Tar and Oil Distillers ...	...	...	...	...	...	...	2	...	...	...	2
Muriatic Acid Works ...	1	...	...	...	...	...	...	...	...	...	1
Tar and Sulphate of Ammonia Works...	1	...	...	...	...	...	...	...	...	...	1
Tripe Boiler	1	...	...	3	...	2	2	...	...	...	8
Brick Works	5	...	1	...	...	...	...	...	1	...	7
Soap Works	1	...	...	...	...	...	...	...	...	...	1
Slaughterhouses	9	4	3	21	2	3	3	1	1	5	52
Total	19	5	4	26	2	8	13	1	2	8	88

Smoke Abatement.

The summary for the year 1909 is as follows: Observations 509 nuisances reported four, notices served to abate four.

Three out of the 257 firms are on the "black list" and during the year have been served with notice to abate. One of the firms was served with notice on two occasions.

An inspection of the table in which the chimneys are arranged in classes shows that 129, i.e., half the factory chimneys in the Borough emit black smoke in less quantities than one minute in the half-hour, and there ought to be no difficulty in getting all the others to behave in the same way, especially as 54 of these have no difficulty in keeping their chimneys practically smokeless.

TABLE V.

Chimneys under Observation, arranged in Classes, 1909.

Class.		Districts.						Total.
		1	2	3	4	5	6	
1	No. of Chimneys that have emitted practically no black smoke in ½ hour's observation...	12	8	10	6	15	3	54
2	No. of Chimneys that have emitted under 1 minute of black smoke in ½ hour's observation	7	12	14	18	15	9	75
3	No. of Chimneys that have emitted 1 minute but less than 2 minutes of black smoke in ½ hour's observation	12	20	26	9	34	24	125
4	No. of Chimneys that have emitted 2 or more minutes of black smoke in ½ hour's observation	...	1	1	...	1	...	3
	Total	31	41	51	33	65	36	257

Meat and Food Inspection.

The Acts dealing with this branch of Sanitary Work remain the same as last year, and are as follows ;—

The Public Health Act, 1875, Sec. 116 to 119.

The Public Health Act, 1890, Sec. 28.

The Public Health (Regulations as to Food) Act, 1907.

The Bolton Corporation Act, 1872, Sec. 102.

The Contagious Diseases (Animals) Act, 1894 to 1903.

The Food and Drugs Act, 1875 to 1907.

General Inspections.

Slaughter-houses and Shops	2491
Beasts...	8016
Sheep and Lambs	26732
Swine	10266
Calves...	1139
Store Cattle	3314
Farms	279
Markets and Fairs	346
Railway Sidings	140

Carcases found to be Affected with Disease.

No.	Disease.	Cows.	Bulls.	Heifers.	Bullocks	Calves	Sheep.	Pigs	Whole Carcases destroyed.	Parts and Organs.
118	Tuberculosis	104	3	4	5	...	...	2	51	67
3	Pneumonia ...	2	...	1	...	...	...	...	3	...
4	Anthrax ...	4	...	...	...	...	...	...	4	...
3	Dropsy ...	3	...	...	...	...	...	...	3	...
8	Traumatic Inflammat'n	3	...	...	...	...	5	...	...	8
6	Joint Felon ...	6	...	...	...	...	...	...	6	...
8	Parturient Fever	8	...	...	...	...	...	...	8	...
13	Killed when Moribund	5	...	...	...	4	2	2	13	...
163		135	3	5	5	4	7	4	88	75

Other Foods Destroyed.

Fish	19 tons 2 cwts.
Shellfish	9 Bags.
Rabbits	200.
Poultry	15.
Tomatoes	53 Boxes.
Peas	38 Bags

There has been no seizure of food during the year.

The private slaughter-house provided by the Sanitary Committee and used as a clearing house, where animals from farms and elsewhere, suspected of being diseased or having met with an accident are taken and slaughtered, has been of great service in increasing the number of animals destroyed as unfit for food.

Before the renting of this slaughterhouse by the Sanitary Committee, the highest number of animals condemned was 65, but during 1908 and 1909, 124 and 163 animals respectively have been slaughtered under the supervision of the Meat and Food Inspectors.

Regular and systematic inspections have been made of all premises from which food is sold.

All animals and carcases passing through the public abbatoirs, private slaughterhouses, markets and railway sidings, have been inspected before and after slaughter, and generally speaking, the meat sold in the Borough is of good quality.

Misrepresentation of Food.

The practice of dressing sheep so as to give them the appearance of lamb, and representing foreign articles of food as English and selling them as such, obtained to some extent in the Borough. Circulars were issued drawing attention to the provisions of the Merchandise Marks Act, and that has had the effect of practically stopping this practice.

Contagious Diseases Animals Acts, 1894—1908.

Orders and Regulations of the Board of Agriculture under the above Acts during 1909.

Reports.—The reports required by the Board of Agriculture with reference to the number of samples taken in the Borough of Bolton, of butter, milk, and cheese, and also with regard to action taken under the Lancashire (Parasitic Mange) Order, 1908, have been duly sent each quarter.

Swine.—The two most important orders affecting this Borough, the Swine Fever (Regulation of Movement) Order, 1908; and the Swine Fever (Movement of Ireland) Order, 1904, continue in force, and the movement of swine for slaughter or for storing purposes, has been carried out under licenses issued from this department.

The Order amending the Swine Fever (Regulation of Movement) Order, 1908, obtained specially for the Borough at the request of the Medical Officer of Health, has been found to be very useful to the dealers in facilitating the movement of swine through the street.

A new Order that has come into operation during the present year is the Swine Fever (Movement from Isle of Man) Order, 1909.

The Borough has been free from Swine Fever.

Sheep.—The Sheep Dipping (England) Order, 1908, is still in force, and on four occasions the Inspectors have been in attendance at the dipping of sheep. The requirements of the Order were carried out.

Cattle—An outbreak of Anthrax occurred in the Borough during the year, four cows having died of the disease at three different farms. After the disease was diagnosed and precautions taken the disease was effectively stamped out.

The requirements of the Anthrax Order, 1899, were strictly complied with.

A very important Order affecting cattle comes into operation on April 1st, 1910, viz., The Tuberculosis Order, 1909, requiring notice to

be given at the office of the Medical Officer of Health of any cow suspected of suffering from Tuberculosis.

Horses.—The Glanders or Farcy Order of 1907 requiring notice to be given by the owner of any horse, ass, or mule affected or suspected of being affected with glanders or farcy, continues in operation in the Borough. No case has occurred during the year.

A new Order affecting horses, &c., has been issued during the year, viz., The Conveyance of Horses Order which gives power to the Inspector of the Local Authority to stop the movement of aged and decrepit animals so as to prevent cruelty and suffering.

The Lancashire (Parasitic Mange) Order, 1908, is still in operation but no case has occurred during the year. The Local Authority in exercise of their powers under the Order have issued regulations for cleansing and disinfection.

General.—The Fertilisers and Feeding Stuffs Act, 1908.—No application has been made by any person to have a sample of food analysed since the Act came into operation.

The American Gooseberry Order of 1909 affects this Borough and illustrated circulars, obtained from the Board of Agriculture, were distributed amongst dealers and growers.

Illustrated circulars with reference to potatoe disease were also distributed during the year to growers and dealers.

Public Analyst's Report for the year 1909.

(Walter Ratcliffe, F.C.S.)

Under the provisions of the Sale of Food and Drugs Acts, Margarine Act, &c., I have had submitted to me during the year 1909, 402 samples. These samples were made up as follows :—

Nature of Sample.	Total.	Adulterated.	Genuine.
Milk	185	19	166
Butter	60	—	60
Margarine	12	—	12
Lard	11	—	11
Pepper	4	—	4
Coffee	35	—	35
Cocoa	5	—	5
Whisky	10	—	10
Tinned Fruits	65	59	6
Tinned Milk	9	—	9
Cooking Preparation ...	1	—	1
Cheese	1	—	1
Baking Powder... ...	1	—	1
Mustard	3	—	3
Total	402	78	324

Of the total number of samples, 46 per cent. were milk. These were analysed as regards deficiency in fat and the presence of extraneous water, of preservatives, &c. 10·2 per cent. were found adulterated, but some of these were informal samples and therefore not subject to legal proceedings, and some were adulterated to an extent which in the judgement of the legal department were met by a warning. On the other hand, several were very seriously adulterated. Three contained added water to the extents respectively of 32·24, 36·47, 41·42 per cent. These were met by fines of 5/- and costs, 20/- and costs, and costs only.

Two samples were deficient in fat to the extents of 38·3 per cent and 45 per cent respectively, and were penalised thus :—Cautioned, and 20/- and costs. Such fines inflicted by the magistrates, seem to me

absurd and almost useless as deterrents. I have drawn attention to this matter many times, but no alteration, I regret to say, has taken place.

The total fines inflicted amounted to £3 and costs for the year.

There is some reason to believe, and other analysts have expressed similar views, that a practice has grown up, not of grossly adulterating or improvishing milk, but of adding just sufficient water or abstracting such an amount of fat as to leave the milk just within the legal limits. The milk is not NORMAL milk, and it seems to me that if the milk sold to the customer does not coincide with that yielded by the cows, then prosecution ought to follow, even if the milk sold does just satisfy the legal limits.

A most important matter in regard to milk, and one which, with your assistance, I propose to take up, is that relating to the presence in milk of dirt or of foecal contamination, without reference to fat or added water. In other words I propose to examine milk samples for extraneous matters and also to examine them bacterially as to the presence or absence of intestinal bacteria. Such proposal involves very great care and labour.

Butters, margarines, etc., have been specially examined, in addition to the usual procedure, for preservatives of the boron class but no sample has shewn the presence of such preservatives in anything approaching the amount allowed by the new regulations. This matter of preservatives, however, is so important that it is sure to occupy a more and more important place in analysis in the future, and it may be necessary to make many special examinations, and to take many informal samples.

The most interesting feature of the year's work has been the analysis of a large number of samples of tinned fruits, etc., as to their contamination by tin or lead, or both. I have already made two separate reports on this subject but I may, with advantage refer to them here. 65 samples were analysed, and 59 were found to contain tin and many to contain lead in addition. The amount of tin varied from ·1 to as much as 8·6 grains per lb., and several contained over three grains. The amount of lead, a much more poisonous metal,

varied from a trace 1·96 grains per lb. It was noticeable that the tin occurred in largest amounts in samples of pine-apple, and lead in samples of black cherries. Also that where particles of solder existed the contamination was greatest.

It is evident however that the facts quoted above, quite legitimately cast suspicion on this class of food and probably explain many cases of sickness hitherto inexplicable.

A difficulty attending the official sampling of this class of food is the fact the tin and lead are often unevenly distributed throughout the mixture, and this fact may given rise to discrepencies in analysis.

The samples of tinned goods were taken at the instigation of the Local Government Board and were all taken informally, hence legal proceedings were not possible.

It is evident that food analysis will in future have to proceed on new lines as well as on the old ones, and that the subject is becoming more and more complex.

I might point out also that in view of such complexity and of the growth of the town, that 400 samples is an inadequate quantity to safeguard the health and interests of the inhabitants. The number ought to be considerably or largely increased.

TABLE VI.

High Street Baths—Number and Class of Bathers, 1909.

Month.	No. of Weeks	Swimming Baths.			Slipper Baths.		Needle Baths.	Vapour Baths.	Season Ticket Holders.	School Children (Free).	Police. (Free).	Total	Corresponding period last year.
		at 4d.	at 2d.	at 1d.	at 6d.	at 4d.							
January	4	164	524	38	52	38	4	26	123	...	45	1014	1127
February	4	256	816	...	62	64	11	27	122	...	43	1401	1744
March	5	322	1361	8	85	111	17	47	208	...	53	2212	3024
April	4	585	1830	32	103	127	19	45	171	...	21	2933	3356
May	4	651	2667	132	83	143	19	37	125	980	28	4865	8281
June	4	1003	3498	285	141	170	25	54	127	1010	29	6342	9556
July	5	1091	3703	155	224	279	26	53	208	1231	33	7003	11007
August	4	1202	4188	712	145	189	24	39	173	281	48	7001	9818
September	5	832	3740	695	141	143	27	41	205	194	55	6073	6841
October	2	180	918	10	46	63	11	19	76	131	...	1454	2571
November	6	146	2032	373	77	94	24	47	102	...	39	2934	3618
December	5	...	833	347	66	64	15	43	123	...	40	1531	1897
Total	52	6432	26110	2787	1225	1485	222	478	1763	3827	434	44763	62840

TABLE VII.

Turkish Baths.—Number and Class of Bathers, 1909.

Month	No. of Weeks	Massage	Books of Tickets		Cash Tickets		Slipper Baths		Medicated Baths	Total	Corresponding period last year
			1st Class	2nd Class	1st Class	2nd Class	1st Class	2nd Class			
January ...	4	12	36	25	70	64	7	10	3	227	327
February..	4	20	38	24	88	86	13	9	1	279	363
March ...	5	50	51	38	122	132	13	9	4	419	434
April ...	4	36	32	29	98	103	7	14	1	320	335
May ...	4	40	36	25	124	105	14	8	4	356	312
June ...	4	24	33	24	87	92	10	4	1	275	317
July ..	5	18	41	27	94	101	10	22	2	315	459
August ...	4	16	32	20	75	114	9	12	...	278	277
September	5	29	51	18	100	101	7	7	9	322	352
October ...	2	33	22	10	46	46	9	3	3	172	194
November.	6	45	61	36	134	125	13	8	5	427	530
December.	5	33	51	33	137	100	8	6	5	373	379
Total ...	52	356	484	309	1175	1169	120	112	38	3763	4279

SECTION IV.

Notification of Births.
Work of Health Visitors.
Control of Midwives.

Notification of Births Act, 1907.

This Act makes it compulsory on the father of a newly-born child, or of any person in attendance upon the mother at the time of or within six hours after birth, to give notice in writing of the birth to the Medical Officer of Health of the district in which the child is born.

This early notification thus gives the Health Visitors the opportunity of visiting the house within two or three days of the date of birth and offering such advice as is deemed necessary.

Analysis of Births Notified.

1.	Total Births Notified in Borough	4257
2.	,, Registered in Borough	4750
3.	,, Notified in No. 1 and No. 2 Health Visitors' Districts	3090
4.	Total Births Registered in No. 1 and No. 2 Health Visitors' Districts	3355
5.	Born Living	2964
6.	Stillborn	126
7.	Number Notified by Medical Men	439
8.	,, ,, Midwives	2457
9.	,, ,, Parents	194

Work of Health Visitors.

I referred in my report of last year to the work which has occupied most of the time of the Health Visitors in connection with the enquiry suggested by the Home Secretary, into the effect on the health of the child of the industrial employment of women before and after child birth. Although this enquiry is limited to children born during 1908, the history of the child has to be folllowed to the end of the first year of life, and hence the re-visits are hardly yet completed. Some time also will be occupied in collating the information obtained and summarising the facts in preparation for a report on the whole enquiry. It is believed, however, that the enquiry will be fully justified, and the time spent repaid by the valuable information which will be obtained.

The work connected with this enquiry, as also the ordinary visits of the Health Visitors, are limited to two out of three Health Visitors' districts into which the Borough has been divided, as it was found that one Health Visitor could not possibly inspect more than one-third of the Borough in a satisfactory manner, and only two Health Visitors have as yet been appointed.

Enquiries are also made into all deaths under one year, but the better class homes are naturally left alone.

No. 1 and No. 2 districts were those selected for the visiting, the Borough being divided as follows:—

	Population.	Births.
District 1.		
Halliwell	25207	606
West	28143	707
Smithills...	5984	127
Astley Bridge	9024	198
North	8071	208
	76429	1846
District 2.		
Exchange	3960	128
East	9449	287
Church	8438	156
Bradford	20677	582
Darcy Lever-cum-Breight	3381	99
Tonge	11456	257
	57361	1509
District 3.		
Derby	20748	583
Rumworth	9814	243
Deane-cum-Lostock ...	3230	99
Hulton	5715	156
Great Lever	12357	261
Heaton	2170	53
	54034	1395
	187824	4750

Summary of Work Done.

1.	Total visits to houses	6074
2.	Birth enquiries made	2274
3.	Death enquiries made	229
4.	Re-visits	3620
5.	Sanitary defects in houses referred to M.O.H.	24
6.	Cases referred to and received from N.S.P.C.C.	26
7.	Cases referred to Philanthropic Societies ...	46
8.	Cases of neglect or improper feeding... ...	98
9.	Number of long tube bottles in use	102

Principal Causes of Death under one year in whole Borough :—

Total Deaths	599
Common Infectious Diseases	25
Diarrhœal Diseases	68
Respiratory Diseases	103
Premature Birth	96
Wasting Disease	113
Tubercular Disease	16
Convulsions	59
Other various causes	119

Deaths from certain diseases among children who were breast fed, hand fed, or breast fed and hand fed (mixed) among 229 deaths in districts visited by Health Visitors :—

Disease.	Breast Fed.	Mixed Fed.	Hand Fed	Died Without Food.	Totals.
Total Deaths	73	48	89	19	229
Infectious Diseases ...	4	4	4	—	12
Diarrhœal Diseases ...	6	12	16	—	34
Respiratory Diseases ...	17	11	20	—	48
Premature Births ...	6	3	3	11	23
Wasting Diseases ...	10	12	27	—	49
Dentition	8	1	6	—	15
Convulsions	12	2	4	5	23
All other diseases ...	10	3	9	3	25

As has already been mentioned the details with regard to the Home Office Enquiry have only just been completed, and in consequence are not available for this report, so that I am unable to give precise statistics with regard to the methods of feeding, the employment of the mothers, and the home circumstances which I hope to be able to do in my next report.

The Health Visitors, however, are satisfied that a great proportion of the mothers are keenly anxious for the welfare of the children and are willing and desirous of obtaining any information for their benefit. Many circumstances point to the fact that they are acquiring a higher appreciation of their duties, and that the work done by the Local Authorities and Philanthropic Societies is gratefully received.

Long tube bottles are not nearly so much used as formerly, and there is a higher degree of cleanliness.

There is a greater tendency to use cows' milk instead of artificial foods amongst those mothers who are unable to nurse their babies, but there are still a few who are insufficiently clothed.

There is a considerable number of premature infants who readily succumb to disease, and this in all probability is predisposed to by the industrial employment of the mother. Some overcrowding has been noticed in houses where the bedroom accommodation is sufficient, but where for convenience persons prefer to place several beds in one room. The proper remedy seems to be the education of the mothers in the principles and advantages of personal hygiene.

Control of Midwives.

The Act for the Control of Midwives was passed in July 1902, and came into force on 1st April, 1903.

During the year 1909 one Midwife gave up practice, and two notified their intention to commence practising in this area, leaving a total of 58 Midwives on the register at the end of the year. Of this number nine have the certificate of the Central Midwives' Board, 14 have certificates from recognised institutions and 35 were registered as having been in bona-fide practice for one year prior to 31st July, 1902.

In accordance with the regulations of the Central Midwives' Board, I have received the following notifications from 29 Midwives :

88 Still-births.
129 Sending for medical help.
6 Deaths of children.
1 Death of mother.

I have examined the case-books, instruments, and appliances of each Midwife during the year, and find they have attended 3154 cases out of a total of 4750 births in the Borough.

SECTION V.

Medical Inspection of Schools

AND

School Children.

The report which I now present to you for 1909 is the first for a complete year on the work done by the School Medical Staff, in the inspection of the Public Elementary Schools and School Children under the control of the Education Authority of the County Borough of Bolton.

It is made in accordance with the regulations issued by the Board of Education as to the annual reports of School Medical Officers, and also in agreement with the Local Government Board's memorandum as to the reports of the Medical Officers of Health.

As the report of last year was made on the results of 16 days' examination, I have thought it advisable to again summarise the regulations contained in the circulars recently issued by the Board with regard to the medical inspection of school children.

The schedule of the Board has been followed in almost every particular, and the report can thus be compared with those of other School Medical Officers, but it must be understood that the work is in its infancy, and that some time must elapse before the staff can become thoroughly familiar with the details, and the organisation brought to higher state of efficiency.

The sanitary survey of the schools is incomplete inasmuch as time has not permitted more than the inspection of the school buildings; but the inspection of children has been complete enough to reveal a condition in many children which seriously affects their health. The addition to the staff of the Health Department of a qualified medical man and two trained nurses, has enabled us to deal in a more scientific and effective manner with epidemic diseases in schools; as their frequent visits have enabled them not only to detect infectious diseases in their earliest stages, but to give advice and practical instruction to the teachers themselves.

So far the only method available for dealing with the defects revealed, has been instructions and advice to the parents and visits to the homes by the School Nurses. How far this has been found effective may be judged from the report.

In the near future however, when more information has been obtained, the subject of medical treatment will require your serious consideration, and more effective schemes for the amelioriation of the conditions revealed will be submitted to you.

From a public health point of view, much useful and interesting information has already been obtained, and to the scientific investigator a wide field for future work has been revealed. If the system of medical inspection develops into a system of prevention, the rising generation of school children will be greatly benefited.

Sanitary Survey of Schools.

Owing to the definite status assigned to the Medical Officer of Health as School Medical Officer, there has been no difficulty in obtaining for the first time information as to the sanitary condition of school buildings.

Time has not permitted me to examine with all the detail suggested by the Board of Education in their circulars, and I have therefore contented myself with the grosser defects and general sanitary condition.

The Sanitary Inspectors are responsible for nuisances found in respect of drains, sanitary conveniences, urinals, yard surfaces, and lavatories, and they have also assisted me in obtaining information as to means of ventilation, cloak rooms, and lighting. The Assistant Medical Officer, as opportunity offered after the inspection of school children, has inspected more particularly the class rooms when occupied by children, and made reports to me. Next year I hope time will permit for this inspection to be done regularly.

I have myself visited each school twice during the year, and have frequently been in communication with the Managers and the Head Teachers. The Director of Education has kindly supplied me with sketch plans of all schools. All nuisances and sanitary defects found have been notified to the Education Committee for Council Schools, and to the Managers in the case of Voluntary Schools.

SANITARY STATE OF SCHOOLS.—SUMMARY.

The following facts refer to 106 Departments and 56 Schools :—

	Total
Blocks of Sanitary Conveniences	124
„ Fresh-water Closets Separately Flushed and Trapped	6
„ Automatic Rim-flushed Pedestals, Separately Trapped	42
„ Automatic Rim-flushed Latrines	3
„ Automatic Pedestal Troughs	13
„ Automatic Troughs	54
„ Privy-middens or Pails	6
Urinals with Flushing Apparatus	6
„ without Flushing Apparatus	78
Yards (Departments)	108
Paved, Flagged, or Cobbled	72
Asphalted	12
Partly Paved	7
Unpaved or Without Yards	23
Lavatories Sufficient	89
„ Insufficient	23
Cloakrooms Sufficient	89
„ Insufficient	18
Ventilation, Good	19
„ Fairly Satisfactory	67
„ Insufficient	24
Lighting, Satisfactory	85
„ Defective Natural	10
„ Defective Artificial	21

SANITARY CONVENIENCES.—These have for some years come under the purview of the Public Health Department, and I have in my Annual Report shewn the improvement made under "Closet Accommodation." Thus, from 1899-1909 inclusive, 94 fresh-water closets, either as additions or in place of pails and privy-middens, have been provided in old schools. The accommodation is on the whole very satisfactory, and they are kept clean, in good repair, and well flushed. Those provided for infants are inconvenient of access for such young children, and should be placed close to the school with an intervening ventilated space, as is the common practice in factories and workshops.

URINALS.—A large proportion of these are without flushing apparatus, and very few are of glazed earthenware, which is the only suitable material. Those in the new schools are very satisfactory and up-to-date.

YARDS.—A few are not yet paved or flagged, and the cobbled ones are not sufficiently smooth and impervious, and are dangerous for children. The worst feature, however, is that only 23 departments in 16 schools have any covered area where the children can be exercised in the open air protected from wind and rain. The total area for the 106 departments is 2,848 square yards. The largest area is that provided for Haulgh School, 672 square yards, and the smallest St. Edmund's School with 25 square yards. This is totally inadequate for a town like Bolton, where the rainfall is 44 inches per annum, and the hours of sunshine only half that of towns in the south of England.

LAVATORIES AND CLOAKROOMS.—On the whole the cloakrooms are satisfactory and sufficient for the children at school, but a few of the schools have defective and insufficient lavatory accommodation. The only school with a bath is the Kay Street Special School.

VENTILATION.—This is the most unsatisfactory feature in the sanitary condition of the schools, for the effect of insufficient ventilation being more directly deleterious to health than any other condition, it becomes a matter of the greatest importance to minimise this danger as much as possible by providing means not only for continuous ventilation, but also for the periodical flushing or perflation when the class rooms are empty. That the Board of Education attach great importance to this matter is shewn by the fact that in the "Suggestions for the consideration of Teachers," 1905, are the following remarks :—

> "No matter how complete the arrangements for the continuous ventilation of a class room may be the scholars should leave the room at least once during each meeting, and the doors and windows should be thrown wide open. Before and immediately after each school meeting the windows and doors should be open to their fullest extent in order that the school may be thoroughly flushed with fresh air. No lesson in physical training should be given with closed windows."

In most of the Bolton schools this flushing cannot be properly carried out, as there are not sufficient windows made to open, but even in those where the means are available I have rarely seen it properly done.

There is no doubt also that the efficient ventilation of schools helps to prevent the spread of infectious disease so common amongst children of school age. In the examination of schools during the year, I found 19 departments with good means of ventilation, 67 fairly satisfactory but capable of improvement, and 24 with insufficient means of ventilation. I am well aware that there are difficulties in the way of providing good ventilation in many schools, and especially those which have been badly planned, but I am equally certain that in most great improvements can be made at little cost, and that the natural lighting can be improved at the same time.

Accommodation.—The sketch plans sent me by the Director of Education have enabled me to calculate the cubic space in each class-room, but there should be placed in each class-room a card shewing the certified accommodation.

Lighting.—With regard to natural lighting only a few schools are defective. The artificial lighting has not yet been examined in detail.

Equipment.—This seems on the whole satisfactory but time has not permitted a detailed examination.

Cleanliness.—Several complaints have been made as to the want of cleanliness, and the Assistant Medical Officer has reported to me, on several occasions the large amount of dust found in the schools. The caretakers' duties include the cleansing of schools every three months. It is doubtful, however, whether this is often enough and whether it is as thoroughly done as it might be.

Sanitary Defects.—After each school visit any defect found was notified to the Education Committee in the case of Council Schools, and to the Managers in Non-provided Schools. In most cases an answer was forthcoming, but in some no notice was taken of the

communication. On the second visit a further notice was sent in those cases where the defect had not been remedied. The following is the summary of defects found with the results up-to-date :—

Defect.	No. of Schools.	Number Remedied.	Number Unremedied.
Insufficient means of ventilation ...	29	9	20
Defective mechanical ventilation ...	2	—	2
Defective natural lighting ...	8	1	7
Insufficient or defective artificial lighting ...	5	1	4
Notices served...	49		

Nuisances in Schools, 1909.—A school being a house under the Public Health Act, 1875, the nuisances have been dealt with in the ordinary way.

Nuisance.	No. of Schools.	Number Abated.	Number Unabated
Insanitary closets	7	4	3
Defective closets	2	2	—
Dirty closets	1	1	—
Defective or insanitary urinals and approach	20	10	10
Defective drains	12	8	4
Defective yard surface	17	7	10
Defective or insufficient lavatories	15	3	12
Accumulation of refuse	1	1	—
Dirty schools	3	3	—

Medical Inspection Act and Regulations.

The section of the Education (Administrative Provisions) Act, 1907, dealing with Medical Inspection, is as follows :—

Section 13. (1) The powers and duties of a Local Education Authority under Part III. of the Education Act, 1902, shall include —

(a) Power to provide for children attending public elementary schools, vacation schools, vacation classes, play centres, etc.

(b) The duty to provide for the Medical Inspection of Children immediately before or at the time of or as soon as possible after their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools.

Provided that in any exercise of powers under this section the Local Education Authority may encourage and assist the establishment or continuance of voluntary agencies and associate with itself representatives of voluntary associations for the purpose.

The circulars issued by the Board of Education under the above section are :—

Circular 576. Medical Inspection of Children in Public Elementary Schools.

Circular 582. Schedule of Medical Inspection.

Circular 596. (a) Functions of the School Medical Officer.

(b) Provision for Medical Inspection of School Children under the Code of 1908.

(c) Annual Report on Medical Inspection.

(d) Arrangements for attending to the Health and Physical Condition of School Children.

Article 58, Code of Regulations, 1909, refers to Medical Inspection :—

(a) Arrangements must be made so far as practicable for carrying out the work of Medical Inspection in the school premises, and the Managers shall give such reasonable facilities as are required by the Local Education Authority for the purpose.

(b) The Board must be satisfied that provision has been made for the Medical Inspection of all children admitted to the school since 1st August, 1909, and of all children who are expected to leave school before 31st July, 1910.

The preparatory memorandum to the Code contains this note :—

The present Code (1909) therefore makes substantially the same requirements as regards the number of children to be inspected as the Code for 1908; but the Board will expect the Authorities to attain a higher standard than was practicable last year, and to make preparations for inspecting an intermediate group of children in the year commencing 1st August, 1910.

Duties of the Medical Staff.

The School Medical Officer was for the first time recognised in the Code of 1908, and is defined in Article 44 (9) as "a Medical Officer named by the Local Education Authority, and recognised as such by the Board."

The functions assigned to him by the Board of Education are :—

(1) Reporting on the working of any arrangements made under Article 44 (9) for educating children at an open air school, school camp, or other place selected with a view to the improvement of the health of the children.

(2) The power of advising or approving the closure of a school under Article 45 (b).

(3) The power of authorising the exclusion of certain children from a school on specified grounds under Art. 53 (b), and of determining when they shall be allowed to return to school.

(4) By the Local Education Authority the School Medical Officer is made responsible for supervising and controlling the general work of Medical Inspection (see Council's Resolution, 15th April, 1908).

(5) By regulation 13 of Circular 576 the School Medical Officer should make an annual report on the school and children under his superintendence.

(6) If the School Medical Officer is also Medical Officer of Health he will be required under the regulations of the Local Government Board to report on the schools and their sanitary condition.

It is suggested that the Annual Report should be under the following heads :—

(1) Sanitary Survey.—Hygienic condition prevalent in schools, including surroundings, ventilation, lighting, warming, equipment, and sanitation, including sanitary conveniences, lavatories, water supply, cleanliness of schoolrooms and cloakrooms, arrangements for drying children's cloaks and boots, and the general arrangements of the school to the health of the children.

(2) Organisation and correlation of School Medical Service with Public Health Service, attendance of parents, and disturbance of school arrangements.

(3) Extent and scope of Medical Inspection.

(4) Facts disclosed by Medical Inspection, including height and weight for age and sex.

(5) Home circumstances, social and industrial conditions.

(6) Methods employed for the treatment of defects.

(7) Prevention of infectious diseases.

(8) Blind, deaf, mentally and physically defective, and epileptic.

(9) Review of methods and results of instruction in schools in personal hygiene and temperance.

(10) Miscellaneous work.—Examination of scholarship candidates, etc.

Organisation.

The Medical Inspection Staff during the year has been increased by the addition of a junior clerk, specially set apart for school work. It now consists of:—

School Medical Officer ...	The Medical Officer of Health.
Assistant School Medical Officer and Deputy Medical Officer of Health. ...	C. W. P. Moffatt, M.A., M.B., D.P.H., etc.
School Nurses	Miss C. S. Kippax, and Miss M. Ashworth.
Medical Inspection Clerk ...	Stanley Worthington.

The Sanitary Inspectors have assisted in the inspection of the school buildings, and have dealt with all nuisances arising in connection with the schools. The clerks in the Public Health Department have assisted in the preparation of the statistical returns but the bulk of the clerical work has been performed by the Deputy Medical Officer and School Nurses. They will now be relieved of much of this through the appointment of the special clerk above mentioned. Weighing machines have now been provided in every school.

The Teachers and Attendance Officers have willingly given every assistance to the staff. Very few schools have, as yet, room that can be set apart for inspection purposes, and small class-rooms in some instances have therefore to be temporarily vacated. The disturbance of school arrangements has been reduced to a minimum, by giving due notice of the visit, and preparing the cards beforehand.

The detailed arrangements for medical inspection were described in my report for 1908, but as it may not yet be familiar to members of the Council I repeat it.

Medical inspection cards are supplied to all the head-teachers and kept in cabinets on the card index system. The head-teachers send lists of the children to be examined to the Education Office, whence notices are sent to the parents of the time and date of the examination

with an intimation that they may attend the examination if they care to do so, and with a request for information with regard to previous illnesses of the child. Prior to the visit of the Medical Inspector, the Head-teacher fills in certain particulars on the schedule card, including the height and weight. The actual inspection is made by the Assistant Medical Officer assisted by the School Nurses, and the particulars on the cards are completed by them. Where it is considered necessary, defects disclosed by the inspection are notified to the parents, and in the case of uncleanliness instructions to be carried out by the parents. All children to be excluded are certified by the School Medical Officer in accordance with the code regulation. The School Nurses visit in their homes, as far as time permits, those excluded and those with notified defects, in order to see that proper treatment is obtained for the affected child. With the addition to the staff of a special clerk, the School Nurses will be able to devote more time to this very important branch of the work.

Extent and Scope of Medical Inspection, 1909.

For the following information I am indebted to the Director of Education, Mr. F. Wilkinson:—

At the end of 1909 there were under the control of the Bolton Education Authority:—

37 Voluntary Schools with 70 departments.
19 Council Schools with 40 departments.
4 Special Schools.

The accommodation was—

18364 Voluntary Schools.
16555 Council Schools.
300 Special Schools.
34919 Total Accommodation in Public Elementary Schools.
30842 on the rolls.
29495 present at all.
27224 average attendance.

There were approximately—

3111 new admissions.
3000 leavers.

Summary of Work Done.

Number of visits to schools	416
Number of visits to parents	1299
Total children examined	7551
New admissions	3187
Leavers	3856
Special children (presented by teachers)	508
Children referred for special examination... ...	160
Children with any defect (entrants and leavers) ...	2637
Parents notified of marked defects... ... ... (entrants and leavers)	2430
Parents notified of marked defects. . ... (special children)	445
No. of children excluded	233
Students examined	100
Pupil Candidates	97
Bursars	41

Age and Sex Distribution of Children Examined.

(Entrants and Leavers)

Age.	Infant Boys.	Infant Girls.	Age.	Mixed Boys.	Mixed Girls.
3—4	369	366	9—10	7	2
4—5	527	509	10—11	4	6
5—6	596	583	11—12	22	13
6—7	92	87	12—13	1631	1614
7—8	24	19	13—14	253	280
8—9	6	9	14—15	18	6
	1614	1573		1935	1921

Classified List of Defects which were Notified to Parents for treatment amongst entrants and leavers, numbering 7043.

	Defect.	Number of Children.
1.	Uncleanliness	211
2.	Ringworm...	27
3.	Defective Teeth	46
4.	Tonsils and Adenoids	717
5.	Enlarged Thyroid	34
6.	Ear Disease	137

	Defect.	Number of Children.
7.	Deafness...	37
8.	Defective Vision	624
9.	Unsuitable Glasses	31
10.	Strabisnus	65
11.	Other Eye Diseases	90
12.	Pulmonary Tuberculosis	32
13.	Other Tuberculosis...	7
14.	Chronic Bronchitis	23
15.	Heart Diseases	39
16.	Nervous Diseases	12
17.	Ricketty Deformities	63
18.	Paralysis	12
19.	Pyrexia...	49
20.	Infectious Diseases	38
21.	Other Diseases	58
22.	General Debility and Anæmia ...	73
23.	Mentally Deficient	5

Facts Disclosed by Medical Inspection.

Dr. Moffatt, the Assistant School Medical Officer, is responsible for the actual examination of school children, and has the assistance of the School Nurses. I am indebted to him for the following interesting report on the physical condition of school children as revealed by Medical Inspection.

The children selected for examination during the year 1909 have been the following:—

(a) Such scholars as began their school life since August, 1908, and had not been examined during 1908. This means that all newly admitted scholars, not being transfers from other schools, are examined as soon as possible after admission.

(b) Such scholars as finished their school life during 1909.

(c) Any scholars whom the head teachers, on the occasion of the doctor's visit, thought fit to present for examination on account of some suspected defect. A considerable number of scholars are thus presented for examination.

(d) Scholars whom the Doctor or Nurses, on visiting the various classes have picked out, on account of their general appearance, as needing medical examination.

It will thus be seen that the bulk of the scholars examined has consisted of newly admitted scholars and of those about to leave school. At the same time every scholar in whose case the teacher has considered medical examination desirable has been seen by the doctor. It is also noticeable from the table that the largest number of boys and girls examined were between the ages of twelve and thirteen, the age, therefore, at which most of the school children of Bolton leave school. Owing to the variable age at entry the numbers at the ages of three to five are smaller.

Special Examinations.—A certain number of children have been examined on Saturday mornings at the Public Health Office. These have consisted of cases referred by myself for re-examination, and of cases referred by the teachers and by Mr. Cain, the Superintendent of Attendance Officers. The number of such examinations was 160.

Time Occupied by Inspection.—The average time taken by the medical examination of each scholar is about five minutes. This time is, of course, exclusive of the time taken by dressing and undressing, weighing and measuring, vision testing, etc. When the parents attend in considerable numbers, as is often the case in the Infant Departments, the time taken by each scholar is longer. If this time seems short, it must be remembered that the school doctor's duty is to detect disease, not to treat it, and that practice enables this to be done very rapidly. As a matter of fact, five minutes per scholar is rather above the average throughout the country. Cases requiring a more lengthy examination are referred for special examination.

Defects.—The various defects revealed by the Medical Inspection of the school children are classified below under the various headings of the schedule. These statistics are not as detailed as I should like them to be, owing to inadequate clerical assistance during the year. This state of affairs has now been remedied by the appointment of a clerk, and during the year 1910 the suggestions contained in the report for 1908 of Dr. Newman, Chief Medical Officer of the Board of Education, as regards statistics concerning teeth, etc., will be adopted.

I wish to thank the teachers for the ready help and the uniform kindness and courtesy which I have received from them. The Medical Inspection has necessarily caused them some inconvenience, but, in

spite of this, they have done everything in their power to make it as pleasant as possible for all concerned. I feel that both the doctor and the nurses owe them sincere thanks.

Height and Weight.—The children have been weighed and measured in their ordinary indoor clothing, but without shoes and stockings. Only the heights and weights of children of the ages three to six and twelve to fourteen have been recorded, as the children examined at other ages were specially selected for examination because of some suspected defect, and not because of their age. The following tables show the heights and weights of the boys and girls in these age groups. For purposes of comparison the standard heights and weights for England and Wales, published in 1883, are appended. When last year's results of the Medical Inspection of the elementary schools of England and Wales are collated more useful standards will be obtained.

HEIGHT AND WEIGHT TABLE, 1909.

Age.	No.	Average Heights.		England & Wales, 1883.		Average Weights.		England & Wales 1883.	
		cms.	ins.	cms.	ins.	Kilos.	lbs.	Kilos.	lbs.
BOYS :									
3	369	91.2	35.9	93.5	36.8	14.8	32.7	15.4	34.0
4	527	97.0	38.2	97.8	38.5	15.7	34.7	16.9	37.3
5	596	101.6	40.06	104.1	41.0	17.2	38.0	18.1	39.9
12	1631	136.9	53.9	139.4	54.99	33.1	72.9	34.8	76.7
13	253	142.0	55.9	144.4	56.9	37.2	82.1	37.5	82.6
GIRLS :									
3	366	89.6	35.3	92.0	36.2	14.0	30.9	14.3	31.6
4	509	96.5	38.0	97.0	38.2	15.5	34.1	16.4	36.1
5	583	100.3	39.5	102.9	40.5	16.5	36.3	17.8	39.2
12	1614	137.9	54.3	141.2	55.6	32.7	72.0	34.7	76.4
13	280	142.3	56.04	146.6	57.7	34.9	77.03	39.5	87'2

NUTRITION.—As regards nutrition, the 7043 children examined were classified as follows:—

Good	2056	...	29·2 per cent.
Average	4824	...	68·4 „ „
Bad	163	...	2·3 „ „

The estimation of the degree of nutrition is a matter very largely affected by the personal equation of the examiner; but it is quite certain that there is not any very large number of children in Bolton, whose development is very materially affected by actual insufficiency of food. There are many who suffer from improper food, from unhygienic surroundings, from work beyond their strength and years, but not from actual and habitual hunger. In addition to all other agencies for feeding poor children, the working classes themselves do far more than those unacquainted with the facts would ever suspect. Working class families will rarely see the children of their less fortunate neighbours go hungry, without coming to their assistance in a practical manner.

CLOTHING.—The School Nurses' report on the clothing of the 7043 children inspected in the routine examination is as follows:—

Good	5533	...	79·2 per cent.
Fair	1349	...	19.1 „ „
Bad	105	...	1·5 „ „
Insufficient ...	50	...	0·7 „ „
Verminous ...	6	...	

It must be noted that "Verminous" means infected by body lice (pediculi corporis), and not by fleas.

It is obvious therefore, that the vast majority of the Bolton school children are well clothed. The cleanliness of the clothing, however, leaves much to be desired; more especially that of the younger boys. The clothing of the girls is regularly washed; that of the boys is too often never washed from the day it is put on new, until the day it is discarded as unfit for further wear. It is much to be desired that the clothing of the younger boys should be regularly washed; and we hope in the coming year to bring before the parents a model dress for younger boys, which could be easily washed.

Body.—The report on the condition of the body is as follows:—

Clean	6349	...	90·1 per cent.
Dirty	680	...	9·6 „ „
Verminous ...	8	...	
Ringworm ...	6	...	

It must be remembered in considering these figures, that the parents had all received notice of the examination, and the children had therefore in nearly all cases been specially prepared. A great number of them, though clean, were very badly flea-bitten, and in future, it is intended to keep a record of such cases. Those cases in which the body was found at the time of examination, to be in a verminous condition, imply an extreme of neglect. All such cases were at once excluded from school until properly cleansed.

Hair.—The condition of the head and hair was carefully investigated in every case. The results of the examination are as follows:—

	Boys per cent.		Girls per cent.
Clean	89·0	...	52·5
Nits, moderate ...	7·5	...	28·0
Nits, excessive ...	1·2	...	16·9
Lice	0·7	...	1·3
Ringworm ...	0·7	...	0·3
Impetigo	0·9	...	0·1

It will be seen from this table that a verminous condition of the heads of school children is extremely common, especially among the girls. It requires the greatest care, even on the part of cleanly parents, to prevent the infection of their children's heads. All cases of very dirty and verminous heads were at once excluded from school, and in all cases the parents received a leaflet instructing them how to cleanse the heads. The teachers report a marked improvement in the cleanliness of the heads during the year. The best preventive measures, in the case of the girls, are undoubtedly in cutting the hair short or plaiting it in a pig-tail. These measures have been urged on such parents as have been seen by me or by the nurses, and the teachers have been requested to bring them before the parents as

opportunity offers. In the case of the boys, nothing more is needed than to wash the head at least once a week. There is no doubt that the activity of the school nurses is rapidly producing an improvement in this matter. The hearty co-operation of the teachers also is helping greatly. It is extremely desirable, that, in all new schools, spray baths should be fitted up, where dirty children could be given a bath and taught in a practical manner the virtue and pleasure of cleanliness. Such baths are common in Germany, and can be fitted up at a comparatively trifling cost. From the health point of view, they are much more important than swimming baths.

Enlargement of Tonsils.—Enlargement of tonsils was noted in 920 children, or 13 per cent of those examined. Operation was not recommended in all cases; it was recommended when the enlargement was considerable, or when it was associated with adenoids, running ears, enlargement of the glands of the neck, recurrent sore throat, speech defects, etc. The association of tubercular glands of the neck with enlargement of tonsils, is so well established that it is very important that children with enlarged tonsils who show glandular changes in the neck, should have the tonsils removed. Enlarged tonsils add too very considerably to the distress and danger of scarlet fever.

Adenoids.—Adenoids growths in the naso-pharynx were diagnosed in 764 children, or 10·8 per cent of those examined. Whenever it seemed desirable, and usually in the presence of a parent, a digital examination was made. A large number of these cases have been operated upon as the result of the advice given, and in those cases where the removal of the adenoids was urgent, as when there were running ears, deafness, etc., repeated visits were, if necessary, paid to the children's homes by the school nurses, in order to see that medical treatment was obtained. There can be no doubt that serious trouble has been averted in many cases, and parents have several times expressed much gratitude for the improvement in their children as the result of the treatment advised. Even when the adenoids are causing no obvious trouble at the time of the examination, their removal is desirable, as there is no doubt that children who contract scarlet fever run a greater risk if they have adenoids growths than if they are free from them.

Other Conditions.—The following conditions were met with:—Laryngitis, 4 cases; papilloma of vocal cord, 1 case; mastoid disease, 3 cases; hypertrophic rhinitis, 2 cases; nasal polypi, 2 cases; atrophic rhinitis, 1 case; deflected septum, 27 cases; defective speech, 26 cases; acute tonsillitis, 11 cases.

The above were all bad cases needing treatment; a large number of minor ailments were noted, of which it was not considered necessary to keep any record. Simple parenchymatous goitre was found in fifteen boys and one girl; in forty girls there was considerable enlargement of the thyroid gland, associated with puberty.

Glands.—3110 children were found to have enlarged submaxillary or cervical glands, or both (44·1 per cent). In 16 cases tubercular glands were found, and in most of these cases operation was recommended. When it is remembered that the commonest causes of enlarged cervical and submaxillary glands are dirty and verminous heads and carious teeth, the large number of children having such glands will cause no surprise. The statistics hitherto published concerning enlarged glands in school children are not of much value as they are not comparable. Opinions differ as to when to call a gland enlarged, and different inspectors take different views. I have been so much surprised by some of the statistics given that I have been in correspondence with Sir Clifford Allbutt and Dr. G. F. Still, of the Great Ormond Street Hospital, on the subject. Sir Clifford Allbutt says, "If you ask me as to my impressions, I should say that a palpable gland is probably abnormal, whether tuberculous or not." Dr. Still says, "I think it is a most difficult question, and no two men would get the same statistics from the same children." I hope in the coming year to use some standard which will make comparison possible.

Teeth.—The teeth have been classified in the following groups:

S. Teeth sound; no decay at all.
—4. Less than four teeth decayed.
4. Four, or more than four, teeth decayed.

Out of 7043 children examined, 2762, or 39·2 per cent., had sound teeth; 2933, or 42 per cent., had less than four teeth decayed: and 1348, or 18·8 per cent., had four or more teeth decayed. In all bad

cases which were urgently in need of attention the parents were strongly advised to see a dentist, and in many cases this advice was followed. For the year 1910 the statistics regarding teeth will be distributed according to age and sex. A curious fact revealed by the medical inspection of school children is that the children best cared for have not the best teeth; in fact the reverse is true. I was very much surprised to find in one of the better class schools of Bolton, a school in which the head master is extremely active in instructing the scholars in personal hygiene, that the teeth were particularly bad. I found shortly afterwards that this observation was confirmed by medical inspection in various parts of the country. It is obvious, therefore, that the use of the toothbrush, desirable as it may be, is not the remedy for carious teeth. The cause must lie in improper food. What the error in diet is it is hard to say. It has been noted that in Sweden, where brown bread is mostly eaten, caries is far more uncommon than in Denmark, where white bread is the staple food. This, however, would not seem to explain the difference in Bolton. More detailed statistics will probably in the future throw some light on the subject.

Ear Disease.– 172 children, or 2·4 per cent. of those examined, were found to be suffering from suppuration of the middle ear. The commonest causes of the middle ear troubles were measles, cold, and scarlet fever. A few cases of deafness were found to be due to wax in the ear. The hearing was tested by forced whispering, with the child's back to the doctor. 98 children, or 1·4 per cent. of those examined, were found to be so noticeably deaf as to need medical treatment. Four bad cases of mastoid disease obtained suitable treatment as a result of the advice given.

Ciliary Blepharitis.—In 64 cases, 0·9 per cent., blepharitis of such a degree as to need medical advice was found. This is a condition about which many parents are careless, and for which they do not seek medical treatment unless strongly urged to do so.

Conjunctivitis.—14 bad cases, ·2 per cent., were found. Several were of the phlyctenular variety, and some of these cases were associated with adenoids. The removal of the adenoids was advised, as the condition is sometimes incurable in the presence of adenoid vegetations in the naso-pharynx.

NEBULÆ.—24 children were found to have corneal opacities (·34 per cent.) Vision was considerably affected in several of the cases, and there is a prospect of materially improving the sight of some of them by operation.

CORNEAL ULCERS.—Corneal ulcers were found in four cases.

OTHER CONDITIONS.—The following conditions were noted:—Ptosis, 1 case; dakryocystitis, 2 cases; coloboma of the iris, 1 case; heterochromidia iridis, 2 cases; congenital cataract, 1 case; nystagmus, 7 cases; subconjunctival ecchymosis, 1 case.

STRABISMUS.—88 cases, 1·2 per cent, of strabismus or squint, were found. In every case the parents were strongly urged to get proper treatment.

EYE STRAIN.—This was found in 30 cases. This is a condition which reveals itself most often by headache, and which should always be suspected when the eyelids are inflamed.

VISION.—Only children over six years of age are tested for their vision. They are tested with Snellen's Type in the usual manner. The total number of children thus tested was 4093. The results of the vision testing were as follows:—

Normal sight	3038	...	74·3 per cent.
Vision $^6/_9$ in one eye, or in both eyes, but not worse than $^6/_9$ in either eyes.	421	...	10·2 per cent.
Vision $^6/_{12}$ in one eye, and normal or worse in the other eye.	634	...	15·5 per cent.

In all cases where the vision was $^6/_{12}$ or worse, the parents were advised to obtain medical treatment. When the vision was $^6/_9$, the parents were only advised where there was some other complicating factor.

In several cases when the children were wearing glasses, the glasses were found to be unsuitable, and this was pointed out to the parents.

The glasses were sometimes dirty, a condition to which attention was drawn. When glasses were urgently needed and the parents declared themselves unable to pay for them, they were instructed to go to the Infirmary and get a prescription for glasses. The glasses were then provided by the good offices of the Guild of Help.

Speech.—56 cases, ·8 per cent of children with markedly defective speech, not caused by any anatomical malformation, were met with. The treatment of these cases belongs to the teacher and not to the doctor, and instructions were given as to how they were to be treated.

Diseases of the Heart.—In 18 cases, ·25 per cent functional disease of the heart was diagnosed. Two cases of congenital heart disease were met with; one of the cases was so bad that it was permanently excused school, as the child was quite unfit for school life.

In 39 cases, ·55 per cent mitral valvular disease was diagnosed. In every case the parents were seen and were advised to keep the children under medical care, and special instructions were given to the teachers concerning them. The cases of organic heart disease were in nearly all cases found to have a rheumatic history.

Diseases of the Lungs.—Well marked chronic bronchitis was found in 83 cases, 1·1 per cent. In most of these cases it was associated with some ricketty deformity of the chest, or with adenoids. Phthisis was found in 49 cases, ·7 per cent. All those cases in which the disease was active were excluded from school, and, in all, suitable advice was given. Many of the cases were sent away to convalescent homes, etc.

Two cases of thickened pleura were found, and one case of pleurisy with effusion.

Diseases of the Nervous System. Chorea (St. Vitus' Dance). 11 children were found to be suffering from this disease. They were all excluded from school, and the parents advised to keep them under medical care.

Epilepsy.—8 cases of epilepsy were found among children attending school.

Paralysis.—16 cases of infantile paralysis were found; several of them have been operated on in hospital as a result of the advice given. Five cases of spastic paralysis were diagnosed, and two cases of paralysis due to injury at birth.

Diseases of the Skin.—A very large number of cases of pityriasis simplex (popularly called "scurvy") were noted. The condition is one of a powdery desquamation occurring in patches on the face, and it is not of any importance. No record has been kept of the number of cases seen. A considerable number of cases of impetigo of the face were seen, and the parents were advised as to its treatment. 20 cases of well marked eczema occurred.

The following conditions were also found:—

Multiple warts, 24; nævi of face, 2; psoriasis, 2; scabies, 4; alopecia areata, 7; pityriasis rosea, 1; sebaceous cyst of face, 1; dermoid cyst of eyelid, 1; albinism, 1; acne, 1; herpes zoster, 3.

Deformities.—The great majority of deformities were of ricketty origin. 190 cases of ricketty deformities of the head and chest were noted, and 110 of ricketty deformities of the legs. As a result of the advice given, a considerable number of children with deformed legs, the result of rickets, have been operated on. Several bad cases were repeatedly visited by the nurses until the parents obtained proper treatment. 14 cases of lateral curvature of a somewhat marked degree were found, in addition to a considerable number when the curvature was very slight. Suitable advice was given in all cases.

Other deformities found were:—

Old Pott's disease, 1; hare lip, 2; congenital dislocation of hip, 2; hypospadias, 1; flat-foot, 3; cleft palate, 2; achondroplasia, 1; torticollis, 1.

Tuberculosis.—Pulmonary Tuberculosis was found in 49 cases, ·7 per cent.

The other forms of Tubercular disease found were:—

Tubercular glands, 16 cases; hip disease, 8 cases (1 active); tubercular peritonitis, 8 cases; Pott's disease, 1 case; lupus, 1 case; tubercular ankle, 1 case.

The following other diseases were met with:—

PYREXIA.—44 cases were found. Many of these cases proved to be the onset of infectious diseases. All of them were at once excluded from school.

GENERAL DEBILITY.—57 well marked cases were diagnosed. Many of them were excused attending school for shorter or longer periods, and several were sent to relatives in the country as a result of the advice given.

The following conditions were also found:—

Inguinal hernia, 8 cases; undescended testicle, 1; Still's disease, 1; nephritis, 2; hemicrania, 1; congenital syphilis, 1; lienteric diarrhœa, 1; tænia solium, 1; parotitis, 5; varicella, 1.

Treatment of Defects.

The following Summary has been prepared by Nurse Kippax, from the reports of the school nurses:—

		Total.
1.	Visits to parents	1299
2.	Operations performed, total	146
	Enlarged tonsils and adenoids	105
	Cervical glands	3
	Mastoid disease	6
	Dermoid Cyst	1
	Torticollis	1
	Papilloma of vocal cord	1
	Strabismus or other eye defects	16
	Ricketty legs	17
	Infantile paralysis	8
	Hernia	1
3.	Glasses provided	143

		Total.
4.	Under private medical treatment	284
	Under dental treatment	17
	Attending Infirmary	97
5.	Dirty and insufficiently clothed children, cleaned and provided with clothes	190
	Sent to Convalescent Home...	17
6.	Children provided with extra food	3
7.	Children referred to charitable institutions:—	
	Guild of Help	13
	Southport Convalescent Home	14
	Blair's Hospital	6
	Bolton Infirmary (waiting cases)	70
	Royal Southern Hospital, Liverpool ...	10
	N.S.P.C.C.	13
	District Nursing Institution	7
8.	Other parents who promised to secure Medical Treatment	99

Infectious Disease in Schools.

School closure was resorted to on 41 occasions under Article 57 of the Code of Regulations for Public Elementary Schools. This was due to the biennial visitation of measles which affected the whole of the Borough and local outbreaks of scarlet fever in the infants department of three of the largest schools. In all 37 separate schools were affected, and the closure was for 21 days.

Judging from the deaths it was the mildest epidemic since 1899, when the Borough was extended, the deaths numbering 41 during the whole year, compared with 234 in the year 1907.

The regulations suggested in the recent Memorandum from the Board of Education have been carried out in this Borough for many years; the teachers and other officers notify me of any suspicious cases of notifiable and non-notifiable diseases. Moreover, they are supplied with instructions which I have prepared, shewing the initial symptoms and the period of exclusion for the different diseases. These instructions have been acted upon except in respect of the notification of first cases in epidemics, notices reaching me only after several children in the class

are affected. I have therefore drawn the attention of the Education Committee to this omission, and asked them to issue the necessary instructions to the teachers.

The Medical Inspection staff have been of great assistance in this matter, and during their visits to the schools 57 cases of infectious disease have been detected.

MONTHLY DEATHS FROM MEASLES AND SCHOOL CLOSURE.

Month.	Number of Deaths.	Number of Departments Closed.
January	7	5
February	2	7
March	6	1
April	11	10
May	6	5
June	5	6
July	2	4
August	—	—
September	2	—
October	—	3
November	—	—
December	—	—
	41	41

Special Schools for the Mentally Defective and Epileptic Children.

No alteration has been made during the year in the accommodation for these children, although the erection of a new school is in contemplation. At present a portion of Derby Street Council School is set apart with accommodation for 80 scholars, and in Kay Street there is a new school, quite separate, for 100. The Derby Street accommodation is not satisfactory. I have paid frequent visits to both schools, and always found the children cheerful and well cared for, doing work suitable to their limited capacities. The teachers spare no pains to make the subjects interesting, and display much sympathy with their scholars.

The numbers at present at these schools are :—

Derby Street, 93 ; Kay Street, 74.

During the year 16 children were admitted to Kay Street, and 27 to Derby Street, after proper examination.

Those who left are accounted for as under :—

Destination.	Derby Street.	Kay Street.	Total.
To Work ...	... 8	... 1 ...	9
To Institutions	... 1	... 1 ...	2
Left the District	... 3	... 1 ...	4
	12	3	15

At the last six-monthly examination held in December, 1909, the progress of the children was determined as follows :—

Degree of Improvement.	Derby Street.	Kay Street.
Fit for Transfer	... 1 ...	... 1
Great Improvement	... 38 ...	... 26
Improvement...	... 39 ...	... 33
Slight Improvement	... 6 ...	... 4
	84	64

Every child has made some improvement, and none were hopeless. At Kay Street, seven of those who had made great improvement were doing manual work only.

Blind and Deaf Schools.

These two special schools are now accommodated in separate parts of one building—The Thomasson Memorial School—situate in a healthy part of the Borough, and surrounded by ample grounds. It was built to accommodate 48 blind and 48 deaf children, including 20 residents.

The blind school was opened for scholars in April, 1909, when the old school in Duke Street was abandoned.

There are at present in the school, ten boys and five girls, four of whom are residents, one having been admitted from outside the Borough of Bolton.

The deaf school was opened in June, 1909. There are at present on the rolls twelve boys and ten girls, four are residents, two being from outside the Borough.

Both schools seem well suited to their purpose and the children are as happy as their afflictions will permit.

Open Air Schools and School Camps.

There are no open air recovery schools or camps in Bolton, and arrangements have not yet been made for providing any. It would not be difficult, however, to find many physically debilitated children who are unfit for ordinary schools, although by no means mentally defective. For such children a few months in such a school would mean restoration to a normal state of health. For the physically defective and especially for those suffering from tuberculosis in any form, residential schools in the country would not only be from an economic point of view, cheap, but be the means in many cases, by which the disease would be arrested, and the children restored to a state of physical efficiency, and, in some cases, life long misery prevented. There seems no reason why philanthropic bodies should not co-operate with the Education Authority for this beneficient object.

SECTION VI.

Water Supply.

Water Supply Area.

Since my last report (1908) there has been no alteration in the water supply area, but the population is now estimated at 291350.

It is supplied direct to the houses in the following districts:—

1. Bolton Borough.
2. Farnworth Urban District.
3. Turton Urban District.
4. Kearsley Urban District.
5. Little Hulton Urban District.
6. Part of Westhoughton Urban District (Over Hulton).
7. Part of Bury Rural District (Ainsworth).
8. Part of Worsley Urban District (Higher Division).
9. Part of Barton-on-Irwell Rural District (Clifton).

By meter in bulk to:—

10. Remainder of Westhoughton Urban District.
11. Part of Atherton Urban District.
12. Whole of Aspull Urban District.

Edgworth village is supplied direct from Crowthorne reservoir, and Belmont village from Daddy Meadows Spring, both of which are under the control of the Bolton Corporation.

Quantity of Water.

In the water supply area proper, 6,170,000 are consumed daily for domestic and manufacturing purposes, and to the outside areas in bulk 430,000 gallons for the same purposes.

Impounding Reservoirs.

The holding and collecting capacities of the reservoirs are:—

Watershed.	Reservoir.	Height in feet above O.D.	Capacity Mil. Gals.	Collection per day Mil. Gals.
Entwistle ...	Entwistle ...	690.35 ...	762 ...	4·5
Belmont ...	Springs ...	757·56 ...	134 ...	1.25
	Dingle ...	717 41 ...	79 ...	
Heaton ...	High Rid ...	578.50 ...	133 ...	1.00
Crowthorne	Crowthorne ...		1.5 spring water.	

A new impounding reservoir to hold 520 millions is in course of construction, but will not be completed for another four years. The work is well in hand and good progress is still being made.

Filters and Service Reservoirs.

The details concerning the filtering media for the purification of the water may be thus summarised:—

Filters.	Water.	No.	Area, sq. yds.	Mil. Gals. per Day.
Sweetloves, Sand.	Ent. & Dingle. ...	4 ...	10,000 ...	3.5
Sweetloves, Mechan.	Entwistle ...	10 ...	— ...	1.5
Springs, Sand	Springs ...	2 ...	1,600 ...	0.5
Markland Hill, Sand	High Rid ...	3 ...	3,658 ...	1.0

There are two service reservoirs, one at Sweetloves holding 90 million gallons, and one at Heaton with 91 million gallons.

While there has been no alteration in the number and area of the filter beds, considerable improvements have been made during the year. Thus at SWEETLOVES the sand in one filter bed has been renewed with Leighton Buzzard sand, and the other three filter beds are to be immediately proceeded with. Automatic regulators for controlling the rate of filtration have been fixed in each bed, and sand washers in the centre to avoid the necessity of removing the sand from the filter bed when washing is required. The large clear water tank has been covered in; there is also in contemplation the provision of four more mechanical filters.

At SPRINGS filter beds the sand is now being renewed, the clean water tank has been covered, and higher up on the main intake an automatic chalk mixing apparatus has been erected for neutralising the acidity of the water.

At MARKLAND HILL (Heaton) filter beds the sand has been renewed and the beds are now working efficiently. Automatic regulators of the flow and sand washing troughs are also in use. The clear water tank is also covered. Permission is being sought from the Local Government Board to erect pressure filters.

Gathering Grounds.

Entwistle. The amount of meadow land under cultivation near the reservoir, has been reduced by 30 acres, and no manure is allowed within 50 yards of any stream or watercourse. 1791 acres out of 2160 acres belong to the Corporation and an offer has been made by the Corporation for the purchase of the remaining portion of the watershed including the farm known as New Meadows, where it was proposed to treat consumptive patients.

The surface water from the highway between Bolton and Darwen, and the slop water from the two public houses and cottages, are now properly treated in a filtration tank before passing into the stream. The storm water, however, is not yet excluded.

Belmont. The surface water from the Belmont Road is now led off the watershed and arrangements are being made for exclusion of the storm water. After heavy rains the water from this watershed is somewhat acid, but is free from fœcal and dangerous impurities.

Heaton (or High Rid). The defective drainage along Chorley Old Road which passes through this gathering ground has been remedied, and the road properly sewered.

The Old Hall Lodge water which contributed to the water supply has been cut off as it was found to be badly polluted. The watershed is, however, very unsuitable for the collection of a domestic water supply, and none of the land belongs to the Corporation.

There is no peaty ground, but there are seven farms, 41 houses and a population of 220 persons. The land is heavily manured at certain times of the year, and the storm water is not included but provision is being made for doing so.

In all the watersheds systematic and regular inspections of all the farms is carried out, and all human excreta carefully removed.

Quality of the Water.

For over a year, weekly and systematic analyses of the raw, filtered and stored water have been made both chemically and bacteriologically, and I have been supplied with copies of these. Details of these analyses are given in the tables.

Entwistle Water. This water is derived from a watershed on which there is peaty moorland and 32 occupied farms. There is no provision for the exclusion of storm water, and especially after heavy rains the albuminoid ammonia and oxygen absorbed have been high as might be expected. It cannot yet be said that this water is free from opportunities of pollution, and the work of reducing these should be continued. The filtration both at the sand and mechanical filters at Sweetloves has been efficient enough to make it on the average a good potable water.

Belmont (or Springs and Dingle) Water.—This water is almost wholly obtained from the Three-Nooked Shay Brook, which is mainly collected from a heather-covered steep hill. It is collected in two reservoirs—Springs and Dingle—only the water of the former is filtered here, that from Dingle being mixed with the Entwistle water and filtered at Sweetloves.

It is the purest supply in the Borough, as there are only two farms and one dwelling-house on the gathering ground. After heavy rain, however, it becomes very impure. In the untreated state it has a marked plumbo-solvent action.

The chalk mixing apparatus has proved so satisfactory, however, that only on one occasion was a trace of lead found after 24 hours' contact with clean lead.

The filtration has at times been defective, but this is to be remedied by the enlargement of the filter beds.

High Rid or Heaton Water.—It is the most unsatisfactory of the water supplies, and is at times badly polluted. The improvements made in the filter beds and in other ways, together with the absence of much summer heat, has made it potable right through the year. In the

hot months the stored water has at times a fishy taste, due to the growth of algæ, but this has not been noticed this year, and no complaints have reached me.

Complaints.

One complaint was received from Turton by the Waterworks Committee with regard to the high acidity of the Springs Water, but it was admitted that "only a faint trace of lead was found" after 24 hours' exposure to bright lead.

General Observations.

The year has been a notable one in the history of the Bolton Water Supply, for never before have so many improvements been made, both in protecting the watersheds from pollution, in increasing the efficiency of the filters, and generally safe-guarding its distribution.

The weekly analyses by the Public Analyst have been of the greatest use in determining the quality of the water, and are indispensable to any authority conscientiously desirous of safe-guarding the water supply to a large and growing population.

The Waterworks Committee have authorised me to make periodical inspections of the gathering grounds and reservoirs, and have afforded me every facility for doing so, while the duty has been made pleasant and interesting by the readiness with which Mr. Mitchell, the Waterworks Engineer, supplied me with the necessary information for this report and cordially co-operated with me on every occasion.

Average of 40 Analysis from January to October, 1909.

	Raw Waters.			Filtered Waters.				Storage Waters.	
	Entwistle.	Springs.	High Rid.	Sweetloves (S).	Sweetloves (Mech).	Heaton (S).	Springs (S).	Sweetloves	Heaton.
Chemical.									
Free or Saline Ammonia ...	·005	·009	·0051	·002	·004	·0015	·0015	·0027	·0025
Albumenoid Ammonia	·012	·010	·020	·007	·006	·006	·005	·007	·0119
Nitrates	Trace	Trace	Trace	·000	·000	·000	·000	·000	·000
Oxygen Absorbed	·377	·390	·433	·280	·190	·245	·239	·254	·282
Nitrites	·000	·000	·000	·000	·000	·000	·000	·000	·000
Chlorine	2·164	2·047	2·340	2·164	2·164	2·340	2·047	2·047	2·340
Total Hardness.....	5·015	4·500	7·250	5·000	5·500	7·500	4·572	4·812	8·000
Permanent Hardness	3·000	2·500	4·000	3·000	3·500	4·000	2·750	3·000	4·000
Acidity	·000	·000	·000	·000	·000	·000	·000	·000	·000
Plumb. Solvent Action.....	·000	·000	·000	·000	·000	·000	·000	·000	·000
Bacteriological.									
No. of Microbes, per c.c.	469	232	798	32	17	20	34	107	262
No. growing on agar-agar per c.c.	56	28	109	4	1·7	2·3	4	12	32
B. Coli Communis, per c.c.	10	5	13	1	0	0	0·6	1·3	5

Analysis shewing Maximum of Pollution, 1909.

	Raw Waters.			Filtered Waters.				Storage Waters.	
	Entwistle.	Springs.	High Rid.	Sweetloves (S).	Sweetloves (Mech).	Heaton (S).	Springs (S).	Sweetloves	Heaton.
Chemical.	27th April, 1909.	4th Aug. 1909.	24th May, 1909.	18th May, 1909.	18th May, 1909.	27th April, 1909.	4th Aug. 1909.	12th Aug. 1909.	12th Aug. 1909.
Free or Saline Ammonia...	·0072	·0012	·088	·0028	·003	·003	·0008	·002	·008
Albumenoid Ammonia	·0216	·0188	·089	·014	·007	·009	·0096	·0156	·0216
Oxygen Absorbed.....	·475	·410	1·550	·330	·240	·280	·330	·325	·480
Bacteriological.	28th April, 1909.	4th Aug. 1909.	24th May, 1909.	24th May, 1909.	27th April, 1909.	14th April, 1909.	4th Aug. 1909.	24th May, 1909.	27th April, 1909.
No. of Microbes, per c.c.	1672	550	7000	102	46	82	105	260	870
No. growing on agar-agar per c.c.	202	71	1010	14	5	9	20	31	92
B. Coli Communis, per c.c.	20	2	over 50	5	0	0	5	5	7

Appendix.

CAUSES OF DEATH.	Total.	SEX.		AGE.													
		M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50
A.—General Diseases.																	
I.—Zymotic.																	
Small Pox—Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Small Pox—Not Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Small Pox—No statement	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cow Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicken Pox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	41	18	23	10	19	6	3	...	3	...	...	...	...	...	...	...	...
Epidemic Rose Rash, German Measles ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever ...	25	15	10	...	2	3	7	2	6	3	...	...	...	2	...	...	...
Typhus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Relapsing Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Influenza ...	22	8	14	...	...	...	...	...	1	...	...	...	...	1	1	1	...
Whooping Cough ...	34	9	25	15	9	4	2	2	2	...	...	...	...	...	...	...	...
Mumps	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria & Membranous Croup	20	14	6	...	2	3	7	3	5	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Simple Continued Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Enteric Fever	33	17	16	...	...	...	...	1	3	2	2	5	4	5	3	2	1
Asiatic Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Diarrhœa—Epidemic or Zymotic Enteritis ...	36	16	20	31	4	...	...	...	...	...	...	...	...	...	...	1	...
Diarrhœa, Choleraic Diarrhœa ...	14	8	6	10	1	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malarial Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hydrophobia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glanders, Farcy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anthrax, Splenic Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetanus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis	7	5	2	6	...	...	...	...	...	...	...	...	...	...	...	...	...
Gonorrhœa, Stricture of Urethra	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal—Septicæmia, Sapræmia	2	...	2	...	...	...	...	...	...	...	...	...	1	...	...	1	...
Puerperal—Pyæmia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal—Phlegmasia Dolens (Thrombosis) ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal—*Fever*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Infective Endocarditis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Pneumonia, Pneumonic Fever...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Septicæmia (not Puerperal) ...	4	3	1	...	1	...	...	1	...	1	...	...	...	...	...	1	...
Pyæmia (not Puerperal) ...	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Phlegmon, Carbuncle (not Anthrax)	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Phagedœna	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Septic Diseases ...	2	...	2	...	...	...	...	...	...	...	1	...	...	...	...	1	...
Total Zymotic	245	115	130	72	38	16	19	9	21	6	5	5	5	8	4	7	1
II.—Parasitic.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
III.—Dietetic.																	
Starvation, Malnutrition ...	12	8	4	12	...	...	...	...	...	...	...	...	...	...	...	...	...
Scurvy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism, Delirium Tremens ...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Opium, Morphia Habit ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ptomaine Poisoning	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Industrial Poisoning—Lead	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Industrial Poisoning—Phosphorus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Industrial Poisoning—Arsenic and other Metals ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Dietetic	15	10	5	12	...	...	...	...	...	...	...	...	...	...	...	...	1

	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	0 to 5	5 and upwards	WARD																
								North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rum worth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Dar. Lever c-Br'htmet
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
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	...	...	...	...	...	38	3	2	5	4	...	6	...	3	5	...	...	5	3	...	3	1	3	1
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	14	11	...	1	7	1	1	...	4	2	1	...	3	1	...	...	1	3	...
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3	4	2	1	1	...	...	22	...	1	2	1	3	2	1	2	1	1	...	1	...	5	1	...	1
	...	...	...	...	...	32	2	...	5	4	...	4	...	3	5	2	...	6	5	...	...	...	...	...
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	...	...	...	...	...	15	5	2	1	2	1	3	1	3	1	...	1	...	2	...	...	2	1	...
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3	...	...	...	...	...	1	32	...	2	3	...	6	...	3	3	1	2	...	6	...	1	1	3	2
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	...	...	...	...	...	35	1	...	5	4	...	5	1	...	13	...	1	4	3	...	...	...	...	...
1	...	1	...	...	...	11	3	...	2	3	1	4	...	...	2	...	...	...	1	...	...	...	1	...
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	5	3	1	1	...	154	91	5	23	32	6	34	6	17	36	5	5	18	25	...	10	8	11	4
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
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	...	...	...	...	...	12	3	1	3	2	...	1	...	3	2	...	...	...	1	...	...	2	...	...

CAUSES OF DEATH.	Total.	SEX.		AGE.													
		M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 5
IV.—Constitutional.																	
Tubercular Phthisis (Pulmonary Tuberculosis) ...	187	113	74	...	...	1	1	1	1	2	8	15	23	27	21	18	2
Phthisis	29	19	10	...	...	...	...	...	...	1	5	3	3	3	2	2	
Tubercular Meningitis ...	11	7	4	1	2	1	...	2	3	...	2	...	...	...	...	...	...
Tubercular Peritonitis ...	15	9	6	5	3	...	...	1	3	1	1	...	...	...	...	...	...
Tabes Mesenterica	9	2	7	7	...	...	...	1	...	...	1	...	...	...	...	...	...
Lupus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tubercle of other Organs ...	18	7	11	3	1	...	...	...	2	1	3	...	3	3	1	...	...
General Tuberculosis ...	7	3	4	...	...	1	...	...	...	1	...	2	1	1	...	...	...
Scrofula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatic Fever, Acute Rheumatism ...	12	6	6	...	...	...	...	1	...	3	1	1	1	1	...	1	2
Rheumatism of Heart	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chronic Rheumatism ...	13	2	11	...	...	...	...	...	...	2	1	...	1	1	...	1	1
Rheumatic Arthritis, Rheumatic Gout ...	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Gout	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carcinoma	80	35	45	...	...	...	1	...	1	...	...	1	...	...	6	7	15
Sarcoma	8	4	4	...	...	...	...	...	...	...	...	2	...	...	1	...	1
Cancer, Malignant Disease ...	56	21	35	...	...	...	...	...	...	...	...	...	...	1	3	6	7
Rickets	4	3	1	...	2	1	...	1	...	...	...	...	...	...	...	...	...
Purpura	3	1	2	...	...	1	...	...	1	...	...	1	...	...	...	...	...
Hæmophilia, Hæmorrhagic Diathesis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anæmia, Leucocythæmia ...	13	4	9	...	...	...	...	...	1	...	...	1	...	1	2	2	1
Diabetes Mellitus	31	15	16	...	...	1	...	...	1	2	...	2	2	...	...	...	5
Total Constitutional ...	502	253	249	16	8	6	2	7	13	13	22	28	34	38	36	38	56
V.—Developmental.																	
Premature Birth	96	63	33	96	...	...	...	...	...	...	...	...	...	...	...	...	...
Congenital Defects	18	4	14	17	...	...	...	...	1	...	...	...	...	...	...	...	...
Injury at Birth	12	9	3	12	...	...	...	...	...	...	...	...	...	...	...	...	...
Atelectasis	8	5	3	8	...	...	...	...	...	...	...	...	...	...	...	...	...
Want of Breast Milk ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Teething	28	14	14	18	10	...	...	...	...	...	...	...	...	...	...	...	...
Old Age, Senile Decay... ...	231	90	141	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Developmental ...	393	185	208	151	10	...	...	...	1	...	...	...	...	...	...	...	...
B.—Local Diseases.																	
I.—Nervous System.																	
Meningitis, Inflammation of Brain	56	30	26	17	13	9	1	1	4	2	1	1	...	...	1	...	3
Softening of Brain	11	3	8	...	...	...	...	...	...	...	...	...	...	...	...	...	2
General Paralysis of Insane ...	14	12	2	...	...	...	...	...	...	...	...	1	...	...	3	4	4
Insanity (not Puerperal) ...	3	1	2	...	...	...	...	...	...	...	...	1	...	...	...	1	...
Chorea	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Epilepsy	14	5	9	...	...	...	...	...	...	...	2	2	1	2	...	1	2
Convulsions	72	46	26	59	7	2	1	...	1	1	...	...	...	1	...	...	...
Laryngismus Stridulus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Locomotar Ataxy	4	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2
Paraplegia and Diseases of Spinal Cord	9	6	3	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Neuritis, Peripheral, Poly-neuritis ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brain Tumour (not Specific) ...	8	5	3	...	...	...	...	1	...	...	...	...	2	2	...	...	2
Other Diseases of Nervous System	7	4	3	...	...	...	...	...	...	...	...	...	...	...	2	1	1
Total Nervous	200	117	83	76	20	11	2	2	5	4	3	5	4	6	7	7	16

								WARD																	
0 0 5	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	0 to 5	5 and upwards	North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Dar. Leve c-Br'htmet
6	5	2	1	...	...	3	184	10	12	30	11	19	6	10	24	5	3	10	18	5	6	6	7	5
..	1	...	...	...	...	...	29	...	2	6	1	10	0	4	...	...	...	1	2	...	1	...	1	...
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8	8	5	2	...	...	1	79	5	5	14	4	7	4	5	7	3	...	...	16	1	3	...	4	2
3	1	...	...	...	...	...	8	...	...	1	...	...	2	...	...	...	...	...	4	1	...	...	...	...
7	4	7	2	...	1	...	56	1	6	11	1	8	2	3	8	1	1	1	4	...	1	1	6	1
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2	2	...	...	...	...	...	13	1	...	2	...	1	1	2	3	...	...	2	...	...	...	1	...	...
2	4	3	...	...	...	1	30	...	4	7	...	2	2	2	1	2	...	...	4	3	...	3	1	...
30	26	19	6	...	1	39	463	17	35	87	21	59	21	37	56	11	6	17	56	10	19	14	22	14
..	...	...	...	...	...	96	...	9	3	15	1	15	6	2	17	3	2	2	12	...	2	2	5	...
..	...	...	...	...	...	17	1	2	1	1	2	2	1	2	1	...	...	2	2	...	...	1	1	...
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..	...	...	...	...	...	28	...	1	3	7	...	5	1	3	1	...	...	...	5	...	1	1	...	...
30	25	77	60	43	15	...	231	9	10	36	10	28	20	13	16	9	4	12	22	3	6	12	15	6
30	25	77	60	43	15	161	232	22	17	61	13	53	31	22	36	14	7	16	44	3	10	17	21	6
..	...	...	...	...	...	41	15	1	8	8	2	9	3	1	5	2	...	1	10	1	1	1	2	1
2	2	3	...	...	...	...	11	...	...	3	...	...	...	2	1	1	...	1	1	...	1	...	1	...
..	...	...	...	...	...	...	14	1	2	2	...	2	...	1	1	...	...	...	4	...	...	...	...	1
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..	...	...	...	...	...	69	3	1	7	11	1	13	1	5	8	2	1	4	6	...	3	3	4	2
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..	2	2	...	...	...	...	9	2	...	1	...	...	...	1	2	...	1	...	2	...	...	...	...	...
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1	1	...	1	...	...	...	7	...	1	...	...	2	...	1	...	...	...	1	1	...	...	...	1	...
3	5	5	1	...	...	111	89	6	18	33	3	30	4	13	22	6	2	8	26	1	5	6	11	6

CAUSES OF DEATH.	Total.	SEX.		AGE.													
		M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to
II.—Organs of Special Sense.																	
Otitis, Mastoid Disease ...	3	3	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Epistaxis, Nose Disease ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ophthalmia, Eye Disease ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Organs of Special Sense	3	3	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
III.—Heart.																	
Valvular Disease, Endocarditis (not Infective) ...	62	32	30	...	...	...	...	...	...	2	1	2	5	2	3	6	...
Pericarditis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hypertrophy of Heart ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Angina Pectoris	8	6	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Dilatation of Heart	16	8	8	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Fatty Degeneration of Heart ...	7	3	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Syncope. Heart Disease (not Specified)	141	70	71	4	...	...	...	...	2	2	1	5	1	4	6	5	9
Total Diseases of Heart ...	234	119	115	4	...	...	...	...	2	4	2	7	6	6	11	11	17
IV.—Blood Vessels.																	
Cerebral Hæmorrhage, Embolism, Thrombosis ...	94	41	53	...	1	...	...	...	...	...	...	1	...	...	1	4	7
Apoplexy, Hemiplegia	46	16	30	...	...	...	...	...	...	...	...	...	...	...	2	1	4
Aneurism...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Senile Gangrene	6	5	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Embolism, Thrombosis (not Cerebral)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phlebitis	2	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Varicose Veins	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Blood Vessels (other Diseases of)	9	6	3	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Total Diseases of Blood Vessels...	160	69	91	1	1	...	...	...	...	...	...	1	1	...	3	6	13
V.—Respiratory System.																	
Laryngitis	9	6	3	3	1	...	...	1	4	...	...	...	...	...	...	...	...
Membranous Laryngitis (not Diphtheritic)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Croup (not Spasmodic or Membranous) ...	2	...	2	...	...	1	...	...	1	...	...	...	...	...	...	...	...
Other Diseases of Larynx (not Specified)	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Bronchitis	312	146	166	51	11	4	2	2	...	3	2	...	1	3	7	10	12
Lobar and Croupous Pneumonia	33	25	8	4	1	1	...	...	...	...	...	2	2	1	3	3	3
Broncho, Catarrhal and Lobular Pneumonia...	97	44	53	32	25	7	3	2	6	...	...	...	...	...	2	2	...
Pneumonia	124	75	49	12	9	2	3	2	1	1	2	3	6	10	6	10	5
Emphysema, Asthma ...	5	3	2	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Pleurisy	12	10	2	...	...	...	...	...	...	...	1	1	1	2	1	1	...
Fibroid Disease of Lung ...	4	1	3	...	...	...	...	...	...	...	...	...	...	...	...	2	1
Other Diseases of Respiratory System	17	5	12	3	1	...	...	...	1	...	...	...	...	1	...	...	...
Total Diseases of Respiratory System	616	316	300	105	49	15	8	7	13	4	5	6	10	18	19	28	22

60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	0 to 5	5 and upwards	WARD: North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Dar. Lever c-Br'htmet
1	...	...	...	...	...	2	1	...	...	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...
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10	5	4	2	2	...	...	62	8	4	6	...	7	...	4	6	2	...	5	9	...	2	4	5	...
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3	3	...	...	...	...	...	8	1	...	1	...	2	...	...	2	...	...	1	...	...	...	...	...	1
6	1	2	...	...	...	...	16	...	1	2	1	1	1	2	2	1	...	1	1	...	...	2	1	...
1	2	1	...	...	...	...	7	1	1	2	...	2	...	...	1	...	...	...	...	...	...	...	...	...
12	31	16	5	3	...	4	137	8	7	24	7	26	10	7	10	4	4	3	10	2	3	9	3	4
32	42	23	7	5	...	4	230	18	13	35	8	38	11	13	21	7	4	10	20	2	5	15	9	5
16	10	14	10	3	...	1	93	8	3	14	4	7	3	4	14	4	4	6	4	...	4	7	7	1
10	7	8	2	3	1	...	46	...	4	9	2	9	2	3	3	2	...	...	6	1	...	...	5	...
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3	...	3	1	1	...	...	9	...	1	1	...	2	1	...	2	...	1	...	1	...	...	...	...	...
30	21	25	13	7	2	2	158	8	8	27	9	18	7	8	19	7	6	6	12	1	4	7	12	1
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51	40	42	12	12	1	70	242	11	25	39	11	59	11	14	32	11	10	12	36	3	7	11	14	6
2	2	3	...	...	...	6	27	3	...	11	...	7	1	...	2	...	...	1	5	...	1	2	...	...
3	6	3	2	1	...	69	28	5	11	22	6	12	1	4	10	5	2	5	7	...	1	1	5	...
11	8	3	3	1	...	28	96	3	10	17	5	17	4	5	13	5	3	9	10	1	5	6	6	5
1	1	...	...	...	...	...	5	...	...	...	1	2	...	...	...	...	...	...	1	...	...	...	1	...
...	1	1	...	...	...	...	12	...	1	2	...	...	1	1	...	1	...	...	3	...	2	1	...	...
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3	...	...	1	2	...	4	13	...	1	5	...	3	1	1	3	...	1	...	...	...	1	1	...	...
71	58	53	18	16	1	184	432	22	48	96	24	104	19	26	60	22	16	29	66	4	19	22	28	11

CAUSES OF DEATH.	Total.	SEX.		AGE.													
		M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50
VI.—Digestive System.																	
Tonsillitis, Quinsy	2	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Mouth, Pharynx Disease (not Specified)	2	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Gastric Ulcer	8	3	5	...	...	...	...	...	...	...	3	...	1	1	2	...	...
Gastric Catarrh, Gastritis, Gastro-Intestinal Catarrh ...	24	13	11	12	...	...	...	...	...	...	...	...	...	...	2	1	1
Other Diseases of Stomach (not Malignant)	13	5	8	9	1	...	...	...	...	...	...	...	...	...	...	...	...
Enteritis (not Epidemic) ...	15	7	8	10	1	...	...	1	...	...	...	2	...	...	...	...	...
Gastro-Enteritis	10	7	3	5	2	...	...	...	1	...	...	...	1	...	...	...	...
Appendicitis, Perityphlitis ...	8	5	3	...	...	...	...	...	...	1	1	1	...	1	2	1	...
Hernia	9	6	3	...	...	...	...	...	...	...	...	...	...	1	1	...	1
Intestinal Obstruction ...	10	6	4	1	...	...	...	...	...	...	1	...	1	...	2	2	1
Other Diseases of Intestines ...	14	8	6	3	...	1	...	...	...	...	1	2	...	1	1	...	1
Peritonitis (not Puerperal) ...	4	1	3	...	...	...	1	...	1	1	...	...	...	...	...	...	...
Cirrhosis of Liver	22	13	9	...	...	...	...	...	...	...	...	...	...	...	2	1	5
Other Diseases of Liver and Gall Bladder	18	7	11	3	...	...	...	...	...	...	...	1	...	...	2	3	3
Other Diseases of Digestive System	4	...	4	2	...	...	...	...	...	...	...	...	...	...	1	...	...
Total Diseases of Digestive System	163	83	80	47	4	1	1	1	3	2	6	6	3	4	15	8	13
VII.—Lymphatic System and Ductless Glands.																	
Spleen Disease	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases of Lymphatic System	5	2	3	1	...	...	...	...	2	...	...	...	...	...	...	...	...
Thyroid Body Disease ...	6	...	6	...	...	...	...	...	...	...	3	...	...	...	1	1	1
Suprarenal Capsules Disease ...	2	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Total Diseases of Lymphatic System & Ductless Glands...	13	2	11	1	...	...	...	...	2	...	3	1	...	...	1	1	1
VIII.—Urinary System.																	
Acute Nephritis	10	6	4	2	1	1	...	...	...	1	...	...	...	1	1	...	2
Chronic Bright's Disease, Albuminuria	92	51	41	...	2	...	...	...	1	...	...	4	2	2	7	11	10
Calculus (Not Biliary) ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bladder and Prostate Disease ...	11	10	1	...	...	...	...	...	...	...	...	...	...	1	1	...	1
Other Diseases of Urinary System	8	3	5	...	...	...	...	...	...	...	...	...	1	2	2	1	...
Total Diseases of Urinary System	122	71	51	2	3	1	...	...	1	1	...	4	3	6	11	12	13
IX.—Generative System.																	
Ovarian Tumour (not Malignant)	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Other Diseases of Ovary ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Uterine Tumour (not Malignant)	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Other Diseases of Uterus and Vagina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Disorders of Menstruation ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases of Generative and Mammary Organs ...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Total Diseases of Generative System	6	1	5	...	...	...	...	...	...	...	...	...	...	1	2	...	1
X.—Pregnancy and Childbirth.																	
Abortion, Miscarriage ...	6	...	6	...	...	...	...	...	...	...	...	...	1	...	4	1	...
Puerperal Mania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Convulsions ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Placenta Prævia, Flooding, Accidental Hæmorrhage ...	3	...	3	...	...	...	...	...	...	...	...	1	1	...	1	...	...
Other Accidents of Pregnancy and Childbirth ...	7	...	7	...	...	...	...	...	...	...	...	1	2	3	...	1	...
Total Accidents of Pregnancy and Childbirth ...	16	...	16	...	...	...	...	...	...	...	...	2	4	3	5	2	...

	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	0 to 5	5 and upwards	WARD: North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Dar. Lever c-Br'htmet
	...	...	...	...	...	...	2	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
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	2	1	1	...	...	12	12	...	...	3	1	4	2	2	3	...	...	2	3	...	...	4	...	...
	1	...	...	...	...	10	3	...	...	4	...	2	...	1	1	...	...	1	1	...	...	3	...	...
	...	...	...	1	...	12	3	1	...	4	...	4	...	1	2	...	...	...	1	...	...	...	1	1
	...	...	...	...	...	7	3	1	2	2	...	2	1	...	...	...	...	1	...	...	...	1	...	...
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	...	...	1	...	...	1	9	1	...	3	...	1	...	1	3	...	...	...	1	...	...	...	...	...
	1	...	...	...	...	4	10	1	3	2	...	2	...	...	3	...	...	...	1	...	1	1	...	...
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3	2	1	...	...	...	...	22	1	...	2	3	4	3	1	2	1	...	...	2	...	1	1	...	1
1	1	1	1	...	...	3	15	...	...	3	...	3	...	2	...	...	2	2	4	...	...	1	...	1
	...	...	1	...	...	2	2	...	1	...	...	...	...	...	1	...	1	...	1	...	...	...	...	...
7	7	4	4	1	...	54	109	8	8	31	4	27	6	9	19	1	3	6	20	...	3	13	2	3
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9	13	3	3	1	...	2	90	5	4	16	4	10	2	2	13	4	3	2	10	1	3	4	5	4
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1	...	2	1	1	1	...	11	...	1	1	...	1	1	...	...	1	...	1	2	1	1	...	1	...
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1	14	5	5	2	1	6	116	5	8	22	4	13	4	2	16	5	3	5	13	2	5	4	7	4
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	1	...	...	...	...	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...
	1	...	...	...	...	...	6	...	1	2	...	1	...	...	1	...	1	...	...	...	...	...	...	...
	...	...	...	...	...	...	6	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...	2	1
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	3	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1
	...	...	...	...	...	...	7	...	...	...	...	2	...	...	1	...	...	3	1	...	...	...	...	...
	...	...	...	...	...	...	16	...	...	1	...	3	1	...	1	...	...	4	1	...	...	...	3	2

CAUSES OF DEATH.	Total.	SEX.		AGE.													
		M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	
XI.—Locomotor System.																	
Caries, Necrosis	5	2	3	...	...	...	...	...	...	2	...	1	...	...	...	1	
Arthritis, Periostitis	4	2	2	1	...	1	...	...	...	...	...	1	...	...	...	...	
Other Diseases of Locomotor System	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total Diseases of Locomotor System	9	4	5	1	...	1	...	...	...	2	...	2	...	...	...	1	
XII.—Skin.																	
Ulcer, Bedsore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Eczema	2	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	
Pemphigus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Other Skin Diseases... ...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	
Total Diseases of Skin ...	3	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	
C.—Other Specified Diseases.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
D.—Ill-defined and not Specified Diseases.																	
Atrophy, Debility, Marasmus ...	103	60	43	101	2	...	...	...	...	...	...	...	...	...	...	...	
Dropsy, Ascites, Anasarca ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Tumour	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Abscess	3	1	2	2	...	...	...	...	...	...	...	...	...	...	...	...	
Hæmorrhage	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Sudden Causes (causes unascertained) ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Other Ill-defined Diseases ...	3	...	3	2	...	...	...	...	...	...	...	...	...	...	1	...	
Total Ill-defined and not Specified Causes ...	109	61	48	105	2	...	...	...	...	...	...	...	...	...	1	...	
E.—Violent Causes.																	
1.—Accident.																	
In Mines and Quarries ...	5	5	...	...	...	...	...	...	...	...	1	...	1	2	...	...	1
Vehicles and Horses... ...	6	6	...	...	2	...	...	...	...	1	...	...	...	1	1	...	1
Ships, Boats, Docks (not Drowning)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Building Operations... ...	2	2	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Machinery	2	2	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Weapons and Implements ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Burns and Scalds	19	5	14	2	2	2	3	1	3	3	...	...	...	...	...	2	...
Poison, Poisonous Vapours ...	3	1	2	...	...	...	1	...	...	...	...	...	1	...	...	...	...
Drowning	8	7	1	...	...	...	1	...	2	...	...	...	...	1	1	1	1
Suffocation	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Falls	17	9	8	...	...	...	...	...	...	1	...	...	...	1	...	2	...
Weather Agencies	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Otherwise or not Stated ...	10	7	3	...	...	...	...	...	...	...	...	...	1	...	2	1	4
2.—Homicide.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.—Suicide.	10	6	4	...	...	...	...	...	...	...	...	...	1	3	1	...	...
4.—Execution.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Violent Deaths ...	83	51	32	2	4	2	5	1	5	6	1	...	5	8	5	7	7
Total from all Causes...	2892	1460	1432	599	140	53	37	27	66	42	47	67	75	98	119	129	161

60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	0 to 5	5 and upwards	WARD: North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Dar Lever c-Br'htmet
...	...	...	...	...	...	...	5	...	...	1	...	1	...	...	1	...	...	...	2	...	...	...	...	...	...
...	...	...	...	...	...	2	2	1	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	7	1	1	1	1	2	...	...	1	...	...	...	2	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	3	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	103	...	2	10	18	2	13	2	3	14	...	1	6	16	...	1	7	5	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	1	...	...	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1
...	...	...	...	...	...	107	2	2	10	19	3	14	2	3	15	...	2	6	16	...	1	7	5	4
...	...	...	...	...	...	...	5	...	...	...	...	...	...	1	...	...	2	1	...	...	...	...	...	1
...	...	...	...	...	...	2	4	...	...	...	...	1	...	1	2	1	...	...	1	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	2	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	2	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
...	1	...	...	...	...	10	9	2	3	3	...	2	...	1	1	...	1	1	2	...	1	...	2	...	...
...	1	...	...	...	...	1	2	...	...	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...
...	1	...	...	...	...	1	7	...	1	...	...	...	...	3	...	1	1	...	...	...	...	1	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	2	...	4	...	1	...	17	2	1	2	...	2	1	1	3	...	...	...	3	...	...	1	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	1	...	...	...	10	...	...	1	...	1	1	3	1	...	...	...	...	1	...	1	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	1	...	...	...	...	...	10	1	...	2	...	3	...	1	1	...	...	...	...	...	...	...	2	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	6	...	5	...	1	14	69	5	7	9	...	9	3	11	10	2	4	2	7	1	1	4	6	2
09	213	214	120	75	21	856	2036	121	200	464	96	407	116	165	318	80	59	127	312	24	84	120	137	62

TABLE II.

Population, Births and Deaths in Previous Years.

Year	Population estimated to Middle of each Year	Births		Total Deaths registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents Registered in Public Institutions in District	Deaths of Residents Registered in Public Institutions beyond District	Net Deaths at all Ages belonging to the District	
				Under 1 year of age		At all ages						
		Number	Rate	Number	Rate per 1000 Births Registered	Number	Rate				Number	Rate
1899	162222	4878	30·0	864	177	2971	18·3	116	17	284	3238	19·9
1900	164240	4775	29·0	806	168	2952	17·9	119	16	285	3222	19·6
1901	168748	4648	27·5	794	170	2864	16·9	128	24	245	3085	18·2
1902	171082	4779	27·9	626	130	2741	16·0	160	31	240	2959	17·2
1903	173401	4700	27·1	704	149	2768	15·9	136	18	312	3062	17·6
1904	175744	4736	26·9	775	163	2743	15·6	129	28	279	2994	17·0
1905	178111	4481	25·1	724	161	2492	13·9	138	26	288	2754	15·4
1906	180502	4599	25·4	631	137	2551	14·1	138	27	270	2794	15·4
1907	182917	4476	24·4	646	144	2795	15·2	174	28	306	3073	16 7
1908	185358	4573	24·6	667	145	2599	14·0	153	38	313	2874	15·5
Averages for years 1899-1908.	174232	4664	26·7	723	154	2747	15·7	139	25	282	3005	17·2
1909	187824	4750	25·2	590	124	2590	13·7	161	28	330	2892	15·3

Census, 1901.

Total Population at all ages	168215
Number of Inhabited Houses	35995
Average Number of Persons per House	4·6
Area of District in Acres (exclusive of area covered by water)	14908

TABLE III.

Ward Populations, Births, and Deaths.

Names of Wards	Borough				North				East				West				Exchange				Bradford			
Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 Year
1899	162222	4878	3238	880	7036	213	127	41	11313	354	267	75	27627	784	556	142	7250	188	149	45	19068	600	391	104
1900	164240	4775	3222	814	7200	217	137	41	11000	338	276	60	28370	714	544	127	6750	167	147	39	19440	599	383	104
1901	168748	4648	3085	800	7386	179	118	22	10654	320	257	74	27290	695	451	106	5874	132	156	38	19852	636	441	118
1902	171082	4779	2959	633	7452	209	142	24	10556	312	245	57	27343	708	430	87	5724	173	150	28	19915	627	430	110
1903	173401	4700	3062	713	7520	203	141	33	10400	324	249	50	27410	684	469	121	5535	115	119	20	19980	651	401	111
1904	175744	4736	2994	792	7560	198	122	30	10275	312	231	70	27572	670	496	131	5331	151	101	34	20110	600	379	99
1905	178111	4481	2754	744	7600	175	97	25	10140	339	211	65	27705	677	436	115	5130	144	101	30	20220	572	363	110
1906	180502	4599	2794	636	7710	194	104	27	10040	300	207	51	27840	709	477	123	4950	132	96	15	20330	603	386	101
1907	182917	4476	3073	652	7810	186	118	15	9940	322	233	64	27960	691	491	106	4770	125	107	30	20430	547	402	102
1908	185358	4573	2874	677	7985	178	117	30	9631	321	211	62	28059	726	459	103	4234	125	101	18	20588	571	343	100
Averages of years 1899 to 1908	174232	4664	3005	734	7525	195	122	28	10394	324	238	62	27717	705	480	116	5554	145	122	29	19993	600	391	105
1909	187824	4750	2892	599	8071	208	121	17	9449	287	200	57	28143	707	464	93	3960	128	96	19	20677	582	407	85

TABLE III. (Continued).

Ward Populations, Births, and Deaths.

Names of Wards	Church				Great Lever				Derby				Hulton				Deane-cum-Lostock				Rumworth			
Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year
1899	9936	175	153	31	7744	247	136	31	18629	645	405	119	4124	115	87	32	2787	86	69	23	5995	217	135	36
1900.....	8760	161	143	25	7700	244	129	32	19190	607	424	119	4300	132	82	23	2700	98	55	16	6400	235	144	46
1901.....	8607	155	134	31	9098	230	139	31	19171	591	370	114	4545	135	77	29	3203	96	39	12	7263	220	164	44
1902.....	8604	172	158	24	9433	252	129	23	19315	616	367	104	4684	163	73	21	3209	92	36	8	7590	233	124	31
1903.....	8550	171	139	26	9900	236	150	34	19470	561	349	95	4820	150	78	13	3215	80	51	9	7925	249	129	29
1904.....	8545	168	138	38	10290	234	130	36	19685	601	360	103	4950	142	81	17	3231	81	60	5	8165	246	163	53
1905.....	8540	139	102	18	10697	214	159	36	19870	545	343	93	5080	146	79	27	3245	82	49	13	8415	224	122	43
1906.....	8537	164	135	17	11050	237	121	21	20120	555	344	87	5205	152	58	14	3250	89	32	8	8805	229	125	38
1907.....	8534	169	139	16	11428	240	167	33	20320	536	342	76	5330	137	78	19	3255	72	44	7	9205	241	152	37
1908.....	8472	159	143	32	11897	235	144	25	20552	510	347	94	5557	134	77	13	3230	97	69	14	9465	238	103	32
Averages of Years 1899 to 1908	8708	163	138	25	9923	236	140	30	19632	576	365	100	4859	140	77	20	3132	87	50	11	7922	233	136	38
1909.....	8438	156	116	20	12357	261	165	33	20748	583	318	85	5715	156	80	13	3230	99	59	10	9814	243	127	34

TABLE III. (Continued).

Ward Populations, Births, and Deaths.

Names of Wards	Halliwell				Heaton				Smithills				Astley Bridge				Tonge				Darcy Lever-cum-Breightmet			
Year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year	Population estimated to Middle of each year	Births Registered	Deaths at all Ages	Deaths under 1 year
1899.....	16487	564	355	110	1516	35	22	1	3471	112	64	17	7496	183	122	24	7904	277	149	34	3849	83	54	15
1900.....	17540	566	361	88	1530	29	25	1	3600	102	61	14	7510	188	109	21	8400	284	126	43	3850	94	76	15
1901.....	19746	591	349	87	1902	38	24	4	4412	121	54	13	7707	160	110	29	8562	260	147	37	3566	89	55	11
1902.....	20390	577	283	51	1930	38	31	5	4614	90	68	11	7849	194	137	25	8920	236	99	17	3554	87	57	7
1903.....	21070	572	339	75	1960	37	33	4	4830	138	87	25	7995	176	122	24	9301	256	141	29	3520	97	65	15
1904.....	21635	619	307	76	1994	57	41	10	5010	133	59	17	8155	180	111	22	9725	256	139	31	3508	108	67	15
1905.....	22305	529	303	96	2035	48	25	4	5187	143	74	14	8312	186	118	18	10145	239	117	27	3485	79	56	10
1906.....	22905	573	314	64	2050	46	33	4	5350	117	73	11	8440	188	111	17	10440	227	113	25	3480	90	65	13
1907.....	23580	536	371	80	2063	31	22	3	5522	119	80	11	8540	178	127	22	10755	260	132	23	3475	86	68	8
1908.....	24465	582	344	74	2135	42	26	1	5768	130	81	19	8850	182	100	22	11060	225	146	25	3410	118	63	13
Averages of Years 1899 to 1908	21012	570	332	80	1911	40	28	3	4776	120	70	15	8085	181	166	22	9521	252	130	29	3569	93	62	12
1909.....	25207	606	312	60	2170	53	24	...	5984	127	84	9	9024	198	120	22	11456	257	137	31	3381	99	62	11

TABLE IV.

Cases of Infectious Disease Notified during the Year 1909.

Cases Notified in Whole District

Notifiable Disease	At all Ages	Under 1	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwards
		At Ages—Years					
Small Pox	5	...	...	1	1	3	...
Cholera	...	...	...	...	...	..	...
Diphtheria (including Membranous Croup)	95	...	43	37	9	6	...
Erysipelas	105	2	1	7	9	81	5
Scarlet Fever	760	3	214	475	46	22	...
Typhus Fever	...	...	...	...	...	...	...
Enteric Fever	138	...	3	44	30	60	1
Relapsing Fever	...	...	...	...	...	...	...
Continued Fever	...	...	...	...	...	...	...
Puerperal Fever	4	...	...	...	1	3	...
Plague	...	...	...	...	...	...	...
Phthisis	240	...	4	14	48	166	8
Other Diseases	...	...	...	...	...	...	...
Totals	1347	5	265	578	144	341	14

Total Cases Notified in each Locality

Notifiable Disease	North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Darcy L.-c-Br'm't
Small Pox	...	...	1	...	...	1	2	...	...	...	...	1	...	...	...	..	...
Cholera	...	...	...	...	...	...	...	...	...	..	..	...	...	...	..	...	..
Diphtheria (including Membranous Croup)	7	3	9	4	7	6	4	8	7	3	3	17	1	3	8	5	...
Erysipelas	4	4	12	1	14	3	9	24	6	3	5	5	2	1	9	3	...
Scarlet Fever	82	12	164	6	89	23	50	44	16	4	33	68	6	17	62	80	4
Typhus Fever	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	4	15	14	1	24	6	12	15	4	3	4	19	...	2	1	8	6
Relapsing Fever	..	...	..	...	...	...	...	...	...	...	...	...	..	...	...	...	...
Continued Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever	1	...	1	...	1	...	..	...	...	..	1	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	..
Phthisis	6	17	43	20	43	3	4	40	4	1	13	21	1	6	10	5	3
Other Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	104	51	244	32	178	42	81	131	37	14	59	131	10	29	90	101	13

Number of Cases Removed to Hospital from each Locality

Notifiable Disease	North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Darcy L.-c-Br't'm	Total cases removed to Hospital
Small Pox	...	...	1	...	...	1	1	...	...	...	...	1	...	...	...	...	..	4*
Cholera	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
Diphtheria (including Membranous Croup)	..	...	...	...	...	1	...	..	...	1	...	...	...	...	1	...	..	3
Erysipelas	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
Scarlet Fever	65	5	112	4	66	12	23	22	10	1	23	36	1	3	37	52	2	475†
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	1	9	11	...	14	3	3	3	1	...	3	7	...	...	...	4	4	63
Relapsing Fever	...	...	...	...	...	..	...	...	...	...	..	...	...	...	...	...	...	...
Continued Fever	...	...	...	...	...	...	...	...	...	...	...	...	..	.	...	...	...	...
Puerperal Fever	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...
Plague	.	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phthisis	1	...	2	...	...	..	...	...	...	...	...	...	...	...	..	...	...	3
Other Diseases	2	2	3	...	3	...	..	2	...	...	...	2	...	...	1	1	...	16
Totals	69	16	129	4	83	17	27	27	11	2	26	46	1	3	39	57	6	564

Isolation Hospital—Total available Beds 112
No. of Diseases that can be concurrently treated ... 3

* These cases were treated at Ainsworth Small-pox Hospital (outside the Borough).
† One case admitted from outside the Borough.

TABLE V.

Causes of, and Ages at, Death during Year 1909.

Causes of Death	Deaths at the subjoined Ages of "Residents" whether occurring in or beyond the District							Deaths at all Ages of "Residents" belonging to Localities, whether occurring in or beyond the District																Total Deaths whether of "Residents" or "Non-Residents" in Public Institutions in the District
	All Ages	Under 1 year	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards	North	East	West	Exchange	Bradford	Church	Great Lever	Derby	Hulton	Deane-cum-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge	Tonge	Dar L.-cum-Breightmet	
Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	41	10	28	3	...	...	...	2	5	4	...	6	...	3	5	...	...	5	3	...	3	1	3	1	...
Scarlet Fever	25	...	14	9	...	2	...	...	1	7	1	1	...	4	2	1	...	3	1	...	...	1	3	...	15
Whooping Cough ...	34	15	17	2	...	...	...	...	5	4	...	4	...	3	5	2	...	6	5	...	...	...	...	...	...
Diphtheria (including Membranous Croup)	20	...	15	5	...	...	...	2	1	2	1	3	1	3	1	...	1	...	2	...	...	2	1	...	1
Croup	2	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Fever { Typhus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fever { Enteric ...	33	...	1	5	7	20	...	...	2	3	...	6	...	3	3	1	2	...	6	...	1	1	3	2	11
Fever { Other continued	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza ...	22	...	...	1	...	13	8	...	1	2	1	3	2	1	2	1	1	...	1	...	5	1	...	1	...
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhœa	51	41	5	...	...	3	2	...	7	7	1	9	1	...	16	...	1	4	4	...	...	...	1	...	...
Enteritis...	25	15	4	1	2	2	1	2	2	6	...	6	1	1	2	...	...	1	1	...	...	1	1	1	...
Gastritis...	24	12	...	...	...	8	4	...	...	3	1	4	2	2	3	...	...	2	3	...	...	4	...	...	...
Puerperal Fever ...	2	...	...	...	...	2	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Erysipelas	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Phthisis (Pul. Tuber.)...	216	...	3	4	31	169	9	10	14	36	12	29	7	14	24	5	3	11	20	5	7	6	8	5	3
Other Tuber. Diseases...	60	16	12	11	9	12	...	...	5	8	4	4	2	6	8	...	1	2	6	...	5	2	3	4	10
Cancer, Malig. Disease..	144	...	1	1	3	109	30	6	11	26	5	15	8	8	15	4	1	1	24	2	4	1	10	3	11
Bronchitis	312	51	19	3	2	130	107	11	25	39	11	59	11	14	32	11	10	12	36	3	7	11	14	6	...
Pneumonia	254	48	55	8	7	104	32	11	21	50	11	36	6	9	25	10	5	15	22	1	7	9	11	5	3
Pleurisy	12	...	...	...	...	10	2	...	1	2	...	...	1	1	...	1	...	...	3	...	2	1	...	...	2
Other Diseases of Respiratory Organs	36	6	4	5	...	16	5	...	1	5	2	8	1	2	3	...	1	1	5	...	3	1	3	...	1
Alcoholism ... { Cirrhosis of Liver } ...	24	...	...	...	...	21	3	2	...	2	3	4	3	2	2	1	...	...	2	...	1	1	...	1	...
Venereal Diseases ..	8	6	...	...	...	2	...	...	1	3	1	...	1	...	...	...	...	...	2	...	...	...	...	...	...
Premature Birth ...	96	96	...	...	...	...	...	9	3	15	1	15	6	2	17	3	2	2	12	...	2	2	5	...	...
Diseases and Accidents of Parturition ...	16	...	...	...	2	14	...	...	...	1	...	3	1	...	1	...	...	4	1	...	...	...	3	2	1
Heart Diseases	234	4	...	6	9	138	77	18	13	35	8	38	11	13	21	7	4	10	20	2	5	15	9	5	5
Accidents	73	2	12	11	1	36	11	4	7	7	...	6	3	10	9	2	4	2	7	1	1	4	4	2	35
Suicides	10	...	...	...	...	9	1	1	...	2	...	3	...	1	1	...	...	...	...	...	...	...	2	...	2
All other causes... ...	1117	277	66	32	40	351	351	43	74	195	32	143	48	63	121	31	23	45	125	10	31	56	53	24	61
All causes	2892	509	257	108	114	1171	643	121	200	464	96	407	116	165	318	80	59	127	312	24	84	120	137	62	161

TABLE VI.

Infantile Mortality During the Year 1909.

Deaths from Stated Causes in Weeks and Months Under One Year of Age.

	Cause of Death	Under 1 Week	1-2 Weeks	2-3 Weeks	3-4 Weeks	Total under 1 Month	1-2 Months	2-3 Months	3-4 Months	4-5 Months	5-6 Months	6-7 Months	7-8 Months	8-9 Months	9-10 Months	10-11 Months	11-12 Months	Total Deaths under 1 Year
All Causes	Certified	129	27	27	30	213	64	51	48	28	28	18	26	32	31	27	29	595
	Uncertified	3	...	...	...	3	...	...	...	...	...	...	1	...	...	...	...	4
I. Common Infectious Diseases	Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	...	...	...	...	...	...	...	...	...	1	1	3	1	1	3	10
	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Diphtheria (including Membranous Croup)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Whooping Cough	...	...	...	...	...	...	1	...	...	1	...	4	1	2	1	5	15
II. Diarrhœal Diseases	Diarrhœa, all forms	...	...	1	1	2	3	5	6	4	5	...	2	4	3	4	3	41
	Enteritis, Muco-enteritis, Gastro-enteritis	...	...	1	...	1	...	2	3	3	2	2	...	1	...	1	...	15
	Gastritis, Gastro-intestinal Catarrh	1	1	1	1	4	5	...	1	...	...	1	1	...	...	...	...	12
III. Wasting Diseases	Premature Birth	63	7	8	9	87	8	...	1	...	...	...	...	...	...	...	...	96
	Congenital Defects	12	5	...	1	18	2	1	...	...	1	1	...	...	1	1	...	25
	Injury at Birth	12	...	...	...	12	...	...	...	...	...	...	...	...	...	...	...	12
	Want of Breast-milk, Starvation	...	...	...	1	1	1	4	2	1	1	...	...	1	1	...	...	12
	Atrophy, Debility, Marasmus	20	6	9	9	44	19	12	11	2	3	...	1	2	3	2	2	101
IV. Tuberculous Diseases	Tuberculous Meningitis	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
	Tuberculous Peritonitis: Tabes Mesenterica	...	...	...	...	...	1	1	1	3	2	1	1	...	1	1	...	12
	Other Tuberculous Diseases	...	...	...	...	...	...	...	1	1	...	...	...	...	...	1	...	3
V. Other Causes	Erysipelas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Syphilis	...	1	1	1	3	2	...	1	...	...	...	...	...	...	...	...	6
	Rickets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Meningitis *(not Tuberculous)*	1	2	...	...	3	...	1	2	1	2	...	...	3	3	1	1	17
	Convulsions	17	3	2	4	26	8	2	4	5	3	2	1	2	2	2	2	59
	Bronchitis	...	1	1	1	3	9	11	4	1	2	4	6	6	2	...	3	51
	Laryngitis	...	...	...	...	...	1	...	...	1	...	...	...	1	...	...	...	3
	Pneumonia	...	...	...	1	1	1	3	6	4	3	3	4	6	6	3	8	48
	Suffocation, overlying	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Causes	6	1	3	1	11	4	8	4	2	3	3	6	2	6	9	2	60
		132	27	27	30	216	64	51	48	28	28	18	27	32	31	27	29	599

Births in the year—Legitimate, 4545; Illegitimate, 205. Deaths from all Causes at all Ages, 2892.
Population, estimated to middle of 1909, 187824