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CITY OF BRADFORD.



ANNUAL REPORT

OF

MEDICAL OFFICER.

1919.

BRADFORD:

WM. BYLES & SONS, PRINTERS, KIRKGATE.

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PREFACE.

The following report on the health of the City has been compiled along the lines laid down in the Memorandum of the Ministry of Health,

The statistics for 1919 are based on the following estimates of population for the middle of that year :—

Civil population, 282,714 ; total population calculated on the Census returns, 294,504.

The birth rate for 1919 has been 13·4 per thousand, and the death rate 16·3 per thousand. There has therefore been a slight increase in the birth rate and a considerable decrease in the death rate.

The death rate from Zymotic diseases has been 0·31 per thousand and from all forms of Tuberculosis 1·31 per thousand.

The infantile mortality rate for 1919 has been 113 per thousand births.

Considerable progress was made in various directions during the year, the most notable of which were the re-organisation of the Laboratory work and the appointment of a whole time Bacteriologist ; the re-organisation of Venereal work in the City ; the further extension of Maternity and Child Welfare work, and the negotiations which culminated in acquiring a Municipal General Hospital.

JOHN J. BUCHAN,

Medical Officer of Health.

TOWN HALL, BRADFORD,

1st October, 1920.

I.—NATURAL AND SOCIAL CONDITIONS OF BRADFORD.

The City of Bradford at the census of 1911 had a population of 288,458 persons; in the middle of 1919 the estimated total population was 294,504, of which 282,714 was the estimated civil population.

The area of the city is 22,880 acres. The lowest point in the district is on the city boundary on the north-east side where the River Aire leaves the boundary near Apperley Bridge and is about 160 feet above sea level, while the highest point is on the city boundary on the west side near Mountain, Thornton, where the height reaches 1,300 feet above sea level. The general configuration of the site of the city is that of a basin surrounded by hills; in the clefts between the hills three streams arise which unite in the centre of the town to flow northward as the Bradford Beck to the River Aire. A very large proportion of the population live in the lower lying parts near the centre of the city.

The chief occupations in the district are those connected with the wool, worsted, and dyeing industries, the number of occupied persons in the city in 1911 being 156,749, nearly half of whom were thus engaged. The proportion of persons employed in Bradford to the total population is one of the highest in the towns of England, 89·2 per cent. of the males over 10 years, and 45·0 per cent. of the females over 10 being returned in 1911 as engaged in some industrial occupation. Of the females over 10 years of age there were employed outside the home in 1911 73·2 per cent. of those unmarried, 19·5 per cent. of those married, and 29·1 per cent. of those widowed. In 1911 there were employed in Bradford an actually larger number of children under 14 years of age than in any other town or district in England, the proportion of boys between 10 and 14 years of age employed being 26·4 per cent., and of girls 24·5.

Many of the peculiar health problems of Bradford have a clear relationship to the occupations of its inhabitants. Apart from such

direct results as the prevalence of anthrax among wool workers and the higher incidence of pulmonary tuberculosis, particularly among the female population, there are many more indirect effects. The early age at which the majority of workers have entered upon employment at the mills has in many cases stunted their physical growth and contorted their mental education and development. The abnormally large number of women employed from young girlhood in factories and mills has not in numerous cases been without effect on the ideals of women's work and duties, and has complicated unduly many of the problems connected with maternity and child welfare. Bradford presents in a superlative degree the deleterious effects on life and health of the rapid and intensive industrial development of the past century.

Poor Law Relief. In the area of the city there is included the whole area of the Bradford Union with a population in 1911 of 235,436 persons, and part of the area of the North Bierley Union, the population of which in 1911 was 132,852 persons, of whom 53,022 resided within the City of Bradford. The following shows the proportion of persons in receipt of relief on the 1st January, 1920, in each of these Unions.

PROPORTION PER 1,000 OF POPULATION IN RECEIPT OF RELIEF.

	Indoor.	Outdoor.	Total Chargeable (includ. lunatics)
England and Wales ..	4·9	7·6	14·7
Bradford Union	5·2	2·5	10·5
North Bierley Union ..	3·2	5·4	10·2

Hospital Accommodation. There are 560 beds in hospitals in Bradford wholly maintained by the local authority for infectious diseases, tuberculosis, venereal diseases, diseases of the eye, ear, nose and throat, and for maternity and child welfare work. In addition also

the local authority has about a two-fifth's interest in three joint hospitals for infectious diseases, providing about 125 beds.

There is within the city St. Lukes' Hospital belonging to the Bradford Union which prior to the war could accommodate some 700 sick but which now contains about 1,150 beds. This Hospital has been recently transferred to the Local Authority as a municipal general hospital. On the city boundary at Clayton is the North Bierley Union Hospital with accommodation for about 240 sick.

The hospitals maintained wholly or partly by voluntary contributions in Bradford number 5 and provide nearly 400 beds, but these also serve the area surrounding the city.

Of the voluntary hospitals the Bradford Royal Infirmary is the chief; it was established nearly 100 years ago and has accommodation for 210 patients. The Infirmary has a large outdoor department, and four years ago it made special arrangements with the local authority for the treatment of venereal disease; two years ago under arrangements with the Ministry of Pensions it opened an orthopædic outdoor department. The Bradford Royal Infirmary treats all forms of disease, it is centrally situated in the city and has done extremely good work, but the general structural arrangements are bad and the hospital work is cramped by the antiquated and inconvenient buildings and the ill-lighted wards. The Board of Management have for some years been endeavouring to make arrangements for the erection of a new Infirmary of about 450 beds on a healthy and convenient site in the city.

The Bradford Children's Hospital opened their new hospital of 74 beds with an outdoor department thirty years ago. Structurally the buildings and general arrangements are good. The wards are circular. The hospital does good general medical and surgical work for the children of the district.

The Bradford Royal Eye and Ear Hospital contains 72 beds and has a large outdoor department. Structurally the hospital is good,

it does a large amount of good work in the special departments of medicine and surgery to which it devotes itself.

St. Catherine's Home for Cancer and Incurables provides 30 beds for these cases, and the Waddilove Samaritan Hospital for Women provides 12 beds.

The following table shows the number of cases admitted to the principal voluntary hospitals and the number treated at the outdoor departments in 1919.

VOLUNTARY HOSPITALS, 1919.

	Cases admitted to hospital.	Cases treated in outdoor departments.
Bradford Royal Infirmary	3422	8669*
Bradford Children's Hospital	605	2486
Royal Eye and Ear Hospital	1407	7597
St. Catherine's Home	50	—
Total	5484	18752

* Exclusive of cases in the venereal and orthopaedic clinics; at the venereal clinic 18,010 attendances were made in 1919, and at the orthopaedic 39,900 attendances were made, a total of 57,910 additional attendances.

For the provision of accommodation for lunatics Bradford forms part of the West Riding Asylums Board, and the majority of cases from Bradford go to Menston Asylum. On the 1st January, 1920, there was being maintained in Asylums 441 cases from the area of Bradford Poor Law Union, and a proportion of the 214 cases from the area of the North Bierley Poor Law Union, or about 525 cases in all from the city.

In addition also there were 207 Bradford Union cases in Workhouses, and 56 North Bierley Union cases in Workhouses, giving about 230 cases of lunatics in Workhouses from Bradford. There was therefore in 1919 a total of about 755 lunatics from Bradford in rate maintained institutions.

The mentally defective are provided for in two institutions maintained by the local authority at Thornton, in Bradford, and at Clayton, on the city boundary, while the local authority has an interest in the Mid-Yorkshire Joint institution at Cattal, near York.

There are three convalescent homes particularly available for Bradford patients, namely, Semon Convalescent Home, Ilkley, with accommodation for about 80, and managed by the Bradford Corporation, Woodlands Convalescent Home, Rawdon, with about the same accommodation, and managed by the Bradford Royal Infirmary, and the Craig Convalescent Home for children, Morecambe, which can accommodate over 20 children, and is managed by the Bradford Royal Infirmary.

The number of deaths in public institutions is given on the tables on pages 19 and 20.

(A) POPULATION.

DISTRIBUTION AND DENSITY OF POPULATION.

Wards	Population, Census 1911	Estimated Civil Population, 1919	Area of Wards in Acres	Persons per Acre
Allerton	11,698	11,623	2,864	4.1
Bolton	8,912	8,731	1,001	8.7
Bradford Moor	23,037	22,834	680	33.6
East	16,629	16,255	385	41.2
East Bowling	17,771	17,404	565	30.8
Eccleshill	10,471	10,391	1,221	8.5
Exchange	3,101	2,852	118	24.2
Great Horton	23,415	23,170	1,289	11.9
Heaton	17,734	17,501	883	19.8
Idle	7,520	7,443	1,693	4.4
Listerhills	16,142	15,414	321	48.0
Little Horton	16,389	15,922	425	37.4
Manningham	22,941	22,668	449	50.5
North	12,158	11,775	353	33.3
North Bierley East	12,013	11,824	2,419	4.9
North Bierley West	10,109	10,054	1,836	5.4
South	14,366	13,874	303	45.8
Thornton	5,544	5,402	2,251	2.4
Tong	7,365	7,315	2,659	2.8
West	10,035	9,555	162	58.9
West Bowling	21,108	20,707	1,003	20.6
City	288,458	282,714	22,880	12.3

The average density of population varies from 2.4 persons per acre in Thornton Ward to 58.9 in the West Ward.

AGE AND SEX DISTRIBUTION OF POPULATION.

Ages.	Census 1911.			Estimated Mid. 1919.		
	Males.	Females.	Total.	Males.	Females.	Total.
Under 1 year	2490	2388	4878	1900	1700	3600
1—2 years	2325	2297	4622	1850	1650	3500
2—3 ..	2474	2416	4890	1800	1600	3400
3—4 ..	2508	2339	4847	1850	1650	3500
4—5 ..	2426	2356	4782	1900	1700	3600
5—10 ..	11701	12095	23796	11700	12000	23700
10—15 ..	12254	12709	24963	12300	12800	25100
15—25 ..	24087	29103	53190	22500	29000	51500
25—35 ..	23432	28415	51847	23000	30000	53000
35—45 ..	20185	23330	43515	20000	29000	49000
45—55 ..	14997	17571	32568	15000	20000	35000
55—65 ..	9189	11587	20776	11000	13000	24000
Over 65	5402	8382	13784	6000	9604	15604
Totals ..	133470	154988	288458	130800	163704	294504

AGE AND SEX DISTRIBUTION OF OCCUPIED PERSONS IN 1911.

Ages.	Number Employed.		
	Male.	Female.	Total.
Under 13 years	1210	1112	2322
14	1355	1341	2696
15	2113	2126	4239
16	2182	2340	4522
17	2383	2519	4902
18	2551	2687	5238
19	2499	2644	5143
20	2309	2525	4834
25	11346	11598	22944
35	23261	13904	37165
45	20035	7925	27960
55	14750	4929	19679
65	8536	2506	11042
Over 65 years	3186	877	4063
Totals	97716	59033	156749

(B) BIRTHS.

The number of births registered in the 53 weeks ending January 3rd, 1920, was 4,023, of which 2,128 were males and 1,895 females. This gives a birth-rate for the year of 13·40 per 1,000, an increase of ·10 per 1,000 from that recorded last year.

The fall in the Bradford birth-rate is shown on the chart following page 24 and in Table A, page 22.

Locally the birth-rate varied from 9·61 in Allerton Ward to 19·94 in the South Ward.

The births in each ward in the four quarters of 1919 are seen on the table on the following page.

Illegitimacy. Of the 4,023 births registered during 1919, 283 or 7·0 per cent. were illegitimate.

(C) DEATHS.

The total number of deaths occurring in Bradford in 1919 was 4,553, but after adding those deaths of Bradford persons occurring outside the city and deducting those occurring in the city of persons resident outside, the number becomes 4,687; and of these 2,280 were males, and 2,407 females. The death-rate corrected for public institutions is therefore 16·27. The death-rate for 1919 is 2·86 per 1,000 less than that of the previous year.

During the year 1919 there has, therefore, been a natural decrease of the population equal to 2·87 per 1,000.

BIRTHS IN WARDS IN EACH QUARTER OF 1919.

Wards	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total.
Allerton	18	25	30	44	117
Bolton	22	22	24	36	104
Bradford Moor ..	60	77	80	129	346
East.. ..	51	58	61	79	249
East Bowling ..	66	58	80	97	301
Eccleshill	33	27	36	47	143
Exchange	12	10	14	14	50
Great Horton ..	58	50	69	92	269
Heaton	31	55	52	60	198
Idle	20	25	34	31	110
Listerhills	55	45	31	71	202
Little Horton ..	22	38	44	63	167
Manningham.. ..	55	47	74	127	303
North	39	44	57	71	211
North Bierley East ..	42	45	33	65	185
North Bierley West ..	19	27	24	38	108
South.. ..	61	61	83	93	298
Thornton	21	16	16	24	77
Tong	26	21	28	37	112
West	24	33	41	66	164
West Bowling ..	45	71	82	111	309
City	780	855	993	1395	4023

The death-rates for the past thirty years are seen on Table A, page 22. The average death-rate per 1,000 for five-yearly periods from 1871 is as follows :—

AVERAGE QUINQUENNIAL DEATH-RATES FROM 1871.

1871-75 ..	25.9	1891-95 ..	19.7	1911-15 ..	15.5
1876-80 ..	22.3	1896-1900..	17.9	1916 ..	16.0
1881-85 ..	19.9	1901-05 ..	16.3	1917 ..	15.34
1886-90 ..	20.9	1906-10 ..	15.1	1918 ..	19.15
				1919 ..	16.27

The Wards with the lowest death-rates have been Allerton, Bolton, East, Bradford Moor, Heaton, and Idle—all under 15 per 1,000—while the Wards with the highest death-rates have been Exchange, West, East Bowling, South, and North Bierley West—all over 18 per 1,000.

The death-rate among the male population has been 17.23, and among the female population 15.45 per 1,000.

The death-rate in Bradford compared with England and Wales is shown on the chart following, page 22.

Mortality at Different Ages. The following Table shows the total deaths in each age group during the past six years.

NUMBER OF DEATHS IN EACH YEAR AT DIFFERENT AGE PERIODS.

Age.	1914	1915	1916	1917	1918	1919
Under 1 year	693	622	581	513	477	454
1— 2 years	190	213	123	159	181	111
2— 5 ..	171	168	106	156	294	144
5—15 ..	142	174	145	126	252	172
15—25 ..	177	186	163	158	290	215
25—45 ..	543	616	574	515	761	621
45—65 ..	1328	1315	1157	1104	1294	1326
over 65 ..	1336	1451	1487	1354	1420	1644

DEATHS IN WARDS IN EACH QUARTER OF 1919.

Wards	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1919
Allerton	60	37	25	30	152
Bolton	56	31	22	24	133
Bradford Moor ..	131	67	50	71	319
East	96	38	40	61	235
East Bowling ..	157	52	47	74	330
Eccleshill	74	26	28	31	159
Exchange	33	14	22	9	78
Great Horton ..	148	80	50	79	357
Heaton	121	49	36	59	265
Idle	47	22	14	23	106
Listerhills	95	45	33	65	238
Little Horton ..	105	44	40	69	258
Manningham	152	90	44	84	370
North	91	45	28	44	208
North Bierley East ..	70	48	34	56	208
North Bierley West ..	101	57	22	39	219
South	102	42	44	69	257
Thornton	46	20	10	19	95
Tong	59	28	18	19	124
West	90	36	33	47	206
West Bowling ..	163	61	61	71	356
City	2003	935	703	1046	4687

In the West Riding Lunatic Asylums and other Institutions outside the district there were 265 deaths of persons ordinarily resident in Bradford, but in reference to 14 of them no address was returned.

BIRTH AND DEATH RATES IN EACH WARD.

Wards.	Birth-rate per 1000	Death-rate per 1000
Allerton	9·61	12·83
Bolton	11·22	14·95
Bradford Moor	14·43	13·71
East	14·39	14·19
East Bowling	16·28	18·61
Eccleshill	13·13	15·02
Exchange	15·51	26·84
Great Horton	11·04	15·12
Heaton	10·73	14·86
Idle	14·06	13·97
Listerhills	12·03	15·15
Little Horton	9·79	15·72
Manningham	12·69	16·02
North	16·68	17·34
North Bierley East	14·80	17·26
North Bierley West	10·27	21·38
South	19·94	18·13
Thornton	13·36	17·25
Tong	14·62	16·63
West	15·71	21·16
West Bowling	14·07	16·87
City	13·40	16·27

Infantile Mortality. There were 454 deaths of infants under one year of age which gives an infantile mortality rate of 113 per 1,000 births. It will be seen that the number of infant deaths is comparatively small, but on account of the much lower number of births the infantile mortality rate still remains high.

INFANTILE MORTALITY IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	127	140	99	128	122	123	118	132	123	113
Great Town	115	140	101	117	114	117	99	104	106	93
England & Wales	106	130	95	109	105	110	91	97	97	89

Mortality between one and sixty-five years. The number of deaths between these ages in 1919 was 2,589, which gives an annual death-rate per 1,000 living at these ages of 9·6 as against 12·7 in 1918.

Mortality over sixty-five years. There were 1,644 deaths of persons aged sixty-five and upwards which gives an annual death-rate per 1,000 living of 110·8 as against 102·3 in 1918.

Deaths in Public Institutions. In 1919, 1,119 deaths of Bradford residents occurred in Public Institutions, or 23·9 per cent. of the total deaths.

DEATHS IN PUBLIC INSTITUTIONS.

Name of Institution.	1917	1918	1919
Bradford Union Hospital	513	595	506
North Bierley Union	7	76	61
Giggleswick Union	9	7	10
Barnsley Union	21	53	37
Other Poor Law Institutions	4	9	2
Menston Asylum	75	105	55
Storthes Hall Asylum	6	7	9
Scalebor Park Asylum	—	4	4
Other Asylums	6	2	2
Royal Infirmary	216	199	218
Children's Hospital	57	48	37
Eye and Ear Hospital	4	5	8
St. Catherine's Home	22	14	18
Other Voluntary Hospitals	4	6	11
Leeds Road Hospital	15	—	18
Bierley Hall Hospital	31	23	24
Odsal Sanatorium	44	26	27
City Infants' Hospital	24	35	32
Municipal Maternity Home	9	2	6
Westwood Certified Institution	—	—	2
North Bierley Joint Hospital	30	33	20
Calverley Joint Hospital	1	2	5
Thornton Joint Hospital	3	10	4
Other Institutions	1	9	3
Total	1172	1271	1119

It will be noted that in 1919, 616 deaths, or 13·1 per cent. of the total deaths occurred in Poor Law Hospitals; 70 deaths or 1·5 per cent. in Lunatic Asylums; 292 deaths, or 6·2 per cent., in Voluntary Hospitals; and 138 deaths, or 2·9 per cent., in Municipal Hospitals.

The age incidence of deaths in Public Institutions is shown in the following Table :—

	Poor Law Hospitals	Lunatic Asylums	Voluntary Hospitals	Municipal Hospitals	Other Institutions	Total	Per cent. of Deaths at each age
Under 1	45	—	22	39	—	106	23·3
1— 2	3	—	13	5	—	21	18·9
2— 5	5	—	13	12	—	30	20·8
5—15	8	—	27	25	—	60	34·3
15—25	17	4	25	22	—	68	31·6
25—45	73	18	63	27	1	182	29·3
45—65	178	31	84	8	1	302	22·8
65 and over	287	17	45	—	1	350	21·3
Total	616	70	292	138	3	1119	23·9

Certification of Deaths. 4,280 deaths, or 91·3 per cent., were certified by medical practitioners, and 394 or 8·5 per cent., by the coroner after inquest, and 7, or 0·2 per cent., were uncertified. The table on the following page shows the causes of death as found at the inquests held.

NUMBER OF INQUESTS HELD, AND VERDICTS RETURNED DURING
THE YEAR ENDED 31ST DECEMBER, 1919.

CAUSE OF DEATH.	Wilful Murder.	Manslaughter.	Temporary Insanity.	Intemperance.	Anthrax.	Accidents.	Natural and Un-known Causes.	Open Verdicts.	Totals.	Remarks.
Violence	
Burns and Scalds	25	...	...	25	
Railways	2	...	...	2	
Motor Vehicles	16	...	...	16	
Other Conveyances	4	...	...	4	
Machinery	3	...	...	3	
Falls	36	...	...	36	
Suffocation	5	...	...	5	
Drowning	4	...	3	7	
Poisoning	6	...	...	4	10	
Intemperance	
Other Causes	5	...	8	13	
SUICIDES—										
Drowning	6	...	...	...	...	1	7	
Hanging	2	...	...	...	...	...	2	
Poisoning	12	...	...	...	...	1	13	
Other Means	10	...	...	...	...	...	10	
Natural and Unknown Causes	241	...	241	
TOTALS	30	...	6	100	241	17	394	There were also 44 cases where, after enquiries were made, it was found that Inquests were unnecessary.

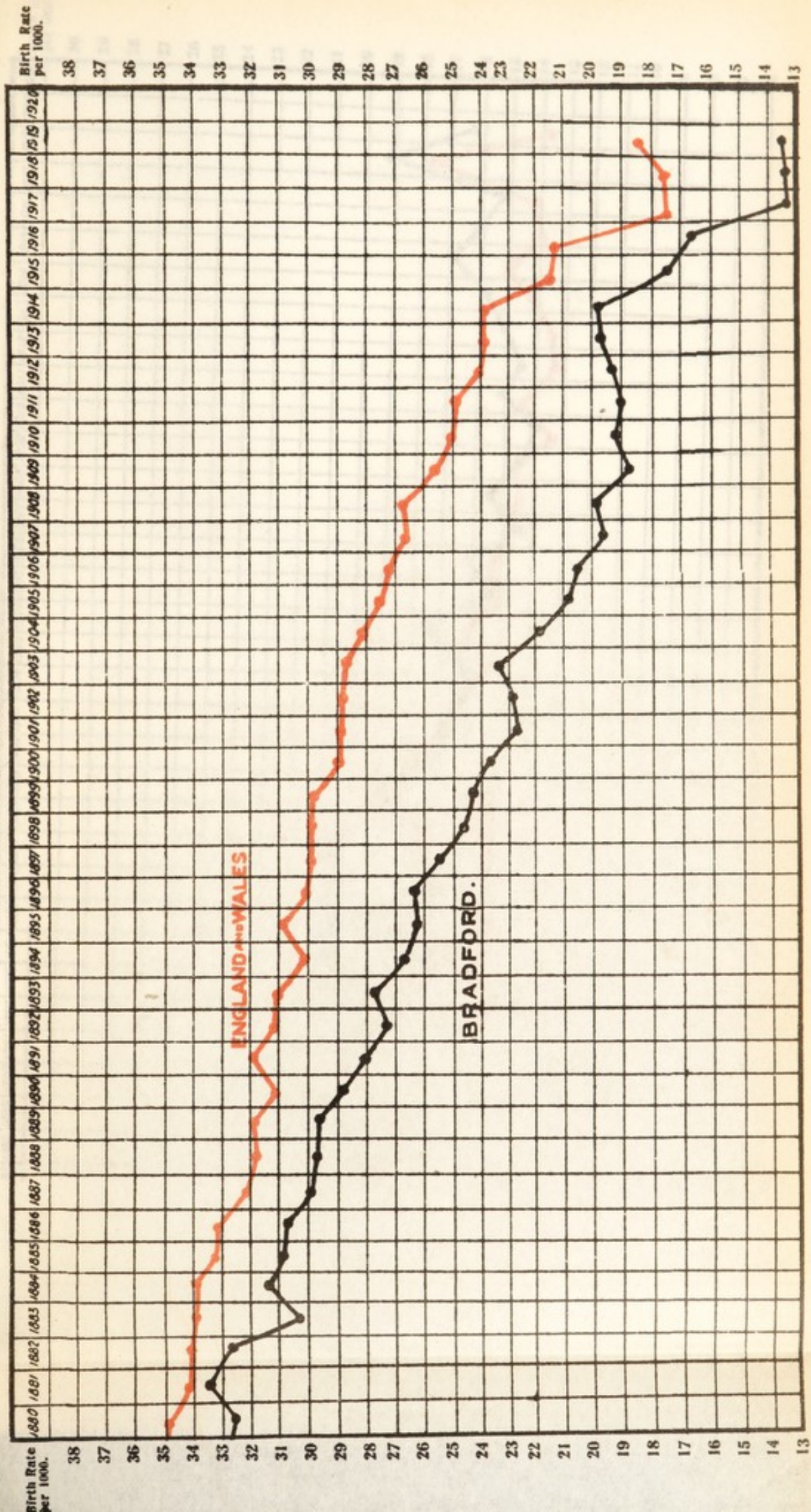
TABLE A.

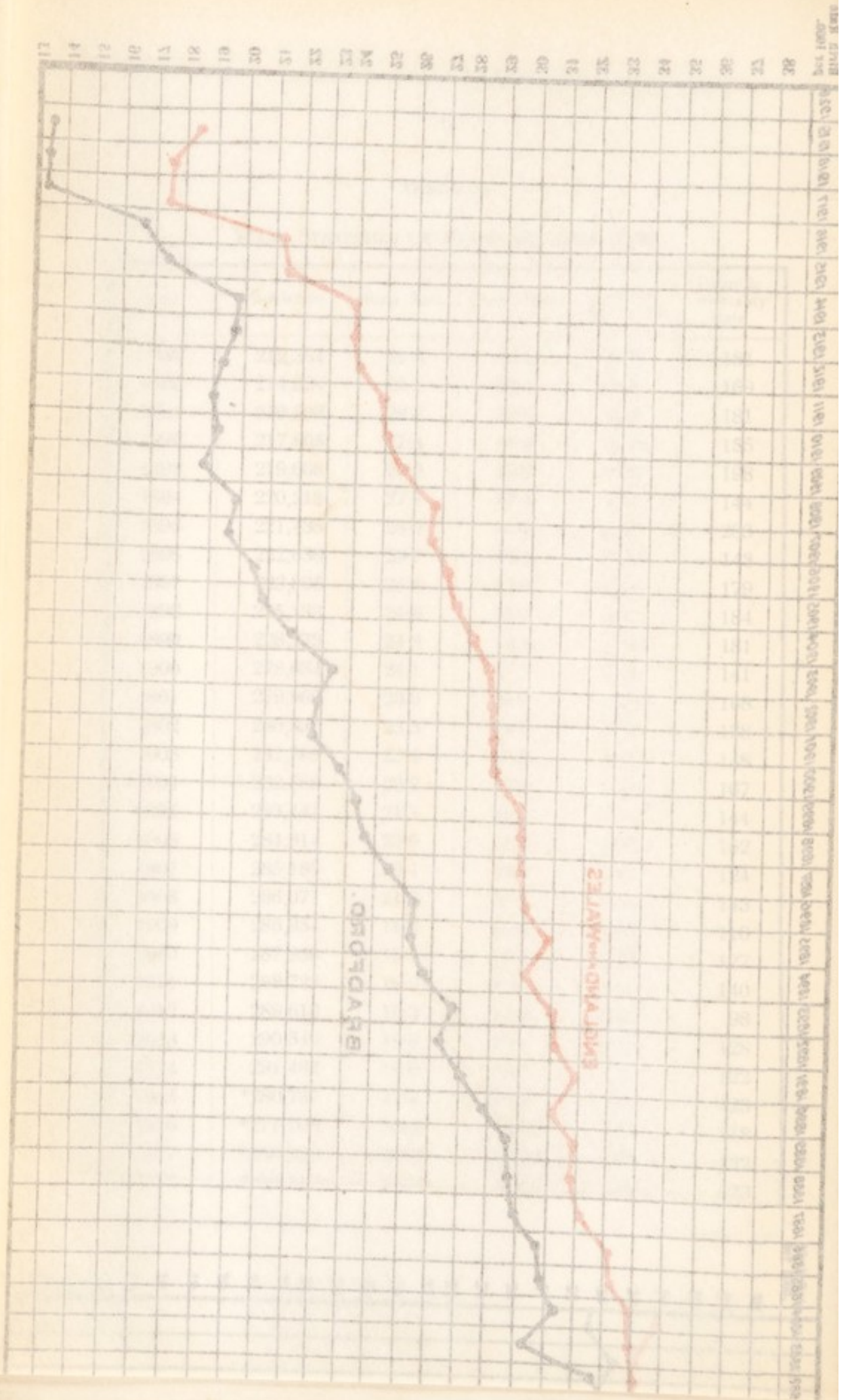
VITAL STATISTICS OF BRADFORD FROM 1888.

Year	Population	Birth Rate	Death Rate	Zymotic Death Rate	Infantile Mortality Rate
1889	212,364	29.5	19.1	2.76	181
1890	214,634	29.1	20.1	2.38	169
1891	216,808	28.7	22.0	2.34	181
1892	217,805	27.4	18.0	1.59	155
1893	219,008	27.9	20.9	3.20	198
1894	220,218	27.1	17.0	1.69	144
1895	221,435	26.6	19.8	2.57	203
1896	222,658	26.7	16.8	1.59	143
1897	223,895	25.4	17.4	2.24	179
1898	225,133	24.8	17.5	2.20	184
1899	226,373	24.3	18.4	2.43	181
1900	278,634	24.1	17.1	1.43	141
1901	279,969	23.0	16.7	1.86	168
1902	280,833	23.3	15.7	1.38	138
1903	281,799	23.4	16.2	1.32	148
1904	282,568	22.2	17.4	2.43	167
1905	283,441	21.3	15.3	1.45	144
1906	284,314	20.9	16.2	1.97	152
1907	285,189	20.1	14.7	0.91	124
1908	286,071	21.0	15.7	1.46	143
1909	286,954	19.2	14.6	0.68	116
1910	287,839	19.1	14.3	1.26	127
1911	288,723	19.0	15.0	1.60	140
1912	289,618	19.3	14.5	0.82	98
1913	290,540	19.6	15.1	1.10	128
1914	291,482	19.6	15.7	1.22	122
1915	*280,737	17.4	16.9	1.22	123
1916	*271,105	16.67	15.99	0.61	118
1917	*266,338	13.06	15.34	0.81	132
1918	*259,707	13.30	19.13	1.07	123
1919	*282,714	13.40	16.27	0.31	113

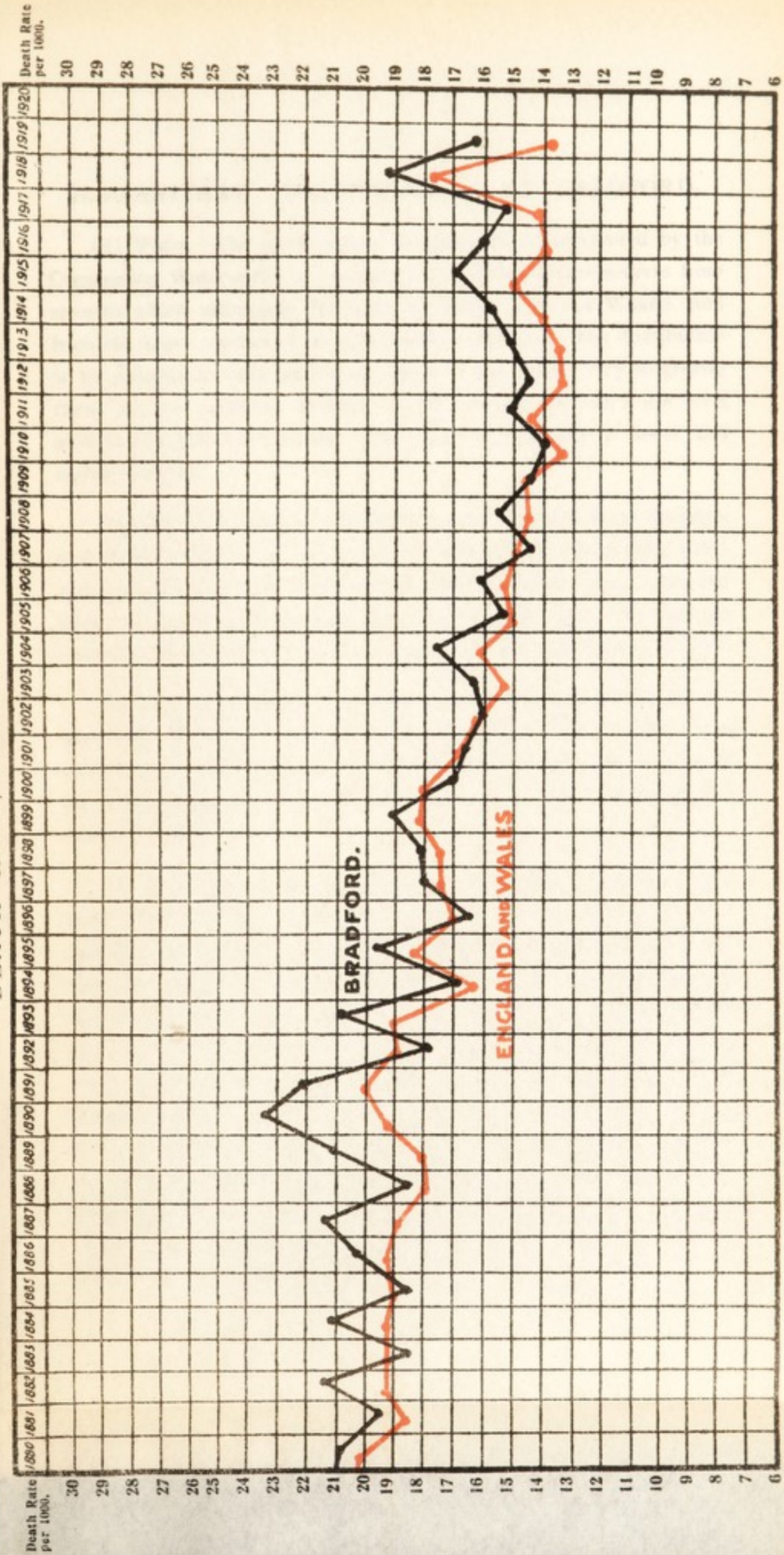
* Civil population.

BIRTH RATE, 1880—1919.



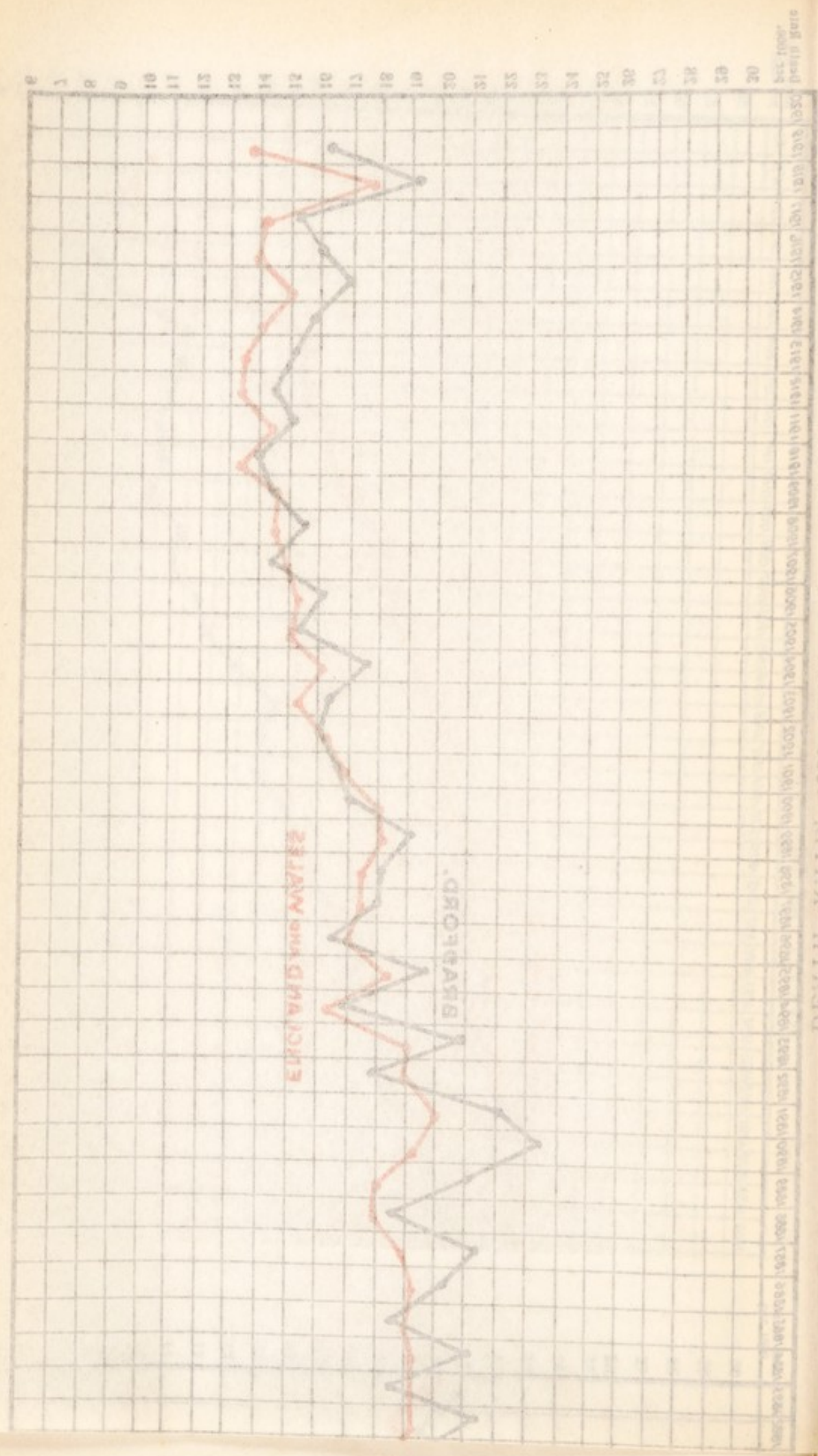


DEATH RATE, 1880-1919.



Death Rate per 1000.

Death Rate per 1000.



II.—SANITARY CIRCUMSTANCES OF BRADFORD.

(A) *Water*.—The water supply of Bradford as distributed by the Corporation Waterworks is obtained from upland surface sources from streams which ultimately flow into the rivers Aire and Wharfe, and from the upper reaches of the rivers Nidd and Stone. The distribution is by gravitation only, and as the levels of the district vary so greatly there are two separate services, a high level service and a low level service, the high level service being again divided into a lower and higher portion.

The high level service is obtained from the Thornton Moor, Stubden, and Nidd sources. The two former are obtained by impounding tributaries of the river Aire, the Thornton Moor reservoir being 1,241 feet above sea level, and the Stubden reservoir 1,028 feet; the Angram reservoir, which collects the Nidd supply, is 1,187 feet above sea level.

The low level service is obtained from tributaries of the Wharfe and other tributaries of the Aire, which are taken into reservoirs and conduits, the Upper Barden reservoir being 1,170 feet above sea level, the Lower Barden reservoir 697 feet above sea level, and the Chelker reservoir 721 feet.

All these sources of supply are soft and of good quality, but that from Thornton Moor, collected on the west of the city from peaty uplands over 1,200 ft. in height, exhibits in its natural state a considerable degree of plumbo-solvency. This has been satisfactorily reduced by alkaline treatment at the reservoir. In this treatment from $1\frac{1}{2}$ to $2\frac{1}{2}$ grains per gallon of calcium carbonate is added to the water at the reservoir and the water after being so treated is passed through slow-sand filters. The results so far as plumbo-solvent action is concerned is seen in the following figures, which compare the average of samples taken in houses first thing in the morning in the supply district in the week ending January 17th, 1920, before the treatment was begun, with the average of samples similarly taken in the week ending January 24th, 1920, when the new treatment was in operation.

THORNTON MOOR WATER SUPPLY.

	Results in Grains per gallon	
	Average of 7 samples before treatment.	Average of 7 samples after treatment.
Lead present	·09	·02
Further lead taken up after exposure to bright lead surface for 24 hours ..	·09	·046
Total lead and lead taken up	·18	·066

None of the other water supplies exhibit any appreciable degree of plumbo-solvency.

There are 91 farms and 403 houses in the city which are not connected with the Corporation water mains. The water supply of 24 of these farms and 155 of the houses is obtained from wells, mostly of the shallow variety, of 61 farms and 220 houses from springs, of 6 farms and 6 houses from surface water, of 18 houses from wells and springs jointly, and of 4 houses from wells and surface water jointly. All these farms and houses are in isolated localities, a considerable number of them being in the Thornton Ward.

(B) *Drainage and Sewerage.* Sewers are laid throughout the district, the great bulk of which lead the sewage to the Sewage Disposal Works at Frizinghall and Esholt. There are 184 farms and 813 houses not connected with the Corporation sewers, the methods of sewage disposal from these premises are as follows :—

Farms. Houses.

129	150	discharge into cesspools.
3	122	„ water courses.
13	330	„ grass land.
20	32	„ cesspools and grass land.
17	32	„ cesspools and water courses.
—	48	„ water courses and grass land.
—	19	„ disused quarry.
2	80	discharge otherwise.

Totals	184	813
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(C) *Closest Accommodation and Scavenging.* During the year 27 privies were converted into water closets and the ashpits in connection with the privies were replaced by dry ash pits or dust bins.

CONVERSION OF PRIVIES AND ASHPITS.

COMPARATIVE TABLE SHOWING THE PROGRESS MADE IN THE
CONVERSION OF PRIVIES INTO WATER CLOSETS.

Year.	Dwelling-houses.		Factories and Workshops.		Other Premises.		Totals.	
	W.C.'s.	Privies.	W.C.'s.	Privies.	W.C.'s.	Privies.	W.C.'s.	Privies.
1909	1969	12	194	2	28	1	2191	15
1910	1945	18	217	2	—	—	2162	20
1911	2128	8	202	—	35	2	2365	10
1912	2917	9	196	—	95	—	3208	9
1913	3990	1	160	—	88	—	4238	1
1914	3123	1	127	—	14	—	3264	1
1915	2028	—	151	—	50	—	2229	—
1916	155	—	128	—	16	8 pails	299	8 pails
1917	30	—	70	—	—	—	100	—
1918	27	1	125	—	6	—	158	1
1919	77	5	135	—	22	—	234	5

ESTIMATE OF SANITARY ACCOMMODATION AT THE END OF 1919.

(i.) Dwelling-houses.

	No. of Houses	Water Closets	Waste Water Closets	Privies
WATER CLOSETS.				
More than one sanitary convenience to each house ..	5128	8247	560	1616
One to each house	32947	32947	—	—
Less than one to each house ..	16043	8420	—	—
WASTE WATER CLOSETS.				
One to each house	7297	—	7297	—
Less than one to each house ..	250	—	126	—
PRIVIES.				
One to each house	5944	—	—	5944
Less than one to each house ..	7699	—	—	3558
Totals	75308	49614	7983	11118

SUMMARY.

	Number.	Percentage.
Houses with water closets	54,118	72-00
Houses with waste water closets ..	7,547	10-00
Houses with privies only	13,643	18-00

(ii.) Business and other Premises.

	No. of Premises	Water Closets	Waste Water Closets	Privies
Factories, workshops, and other business premises ..	4286	10617	—	350
Places of worship, schools, clubs, public institutions, &c.	451	2932	—	252
Totals	4737	13549	—	602

(iii.) Totals.

Number of water closets	63,163
Number of waste water closets	7,985
Number of privies	11,720
	————— 82,866
Number of wet ashpits	8,129
Number of dry ashpits	30,293
Number of dust bins	8,161
	————— 46,583

RECORD OF PLANS PASSED BY THE HEALTH COMMITTEE.

One Hundred and Seventy Four plans have been approved by the Health Committee for the construction of the following works:—

94 water closets affecting 95 dwelling-houses.	
34 dust bins .. 34 ..	
5 privies .. 9 ..	
9 water closets and 3 urinals ..	6 licensed premises.
191 water closets and 4 urinals ..	78 factories and workshops.
23 water closets and 5 urinals ..	14 schools, clubs, etc.

One Hundred and Seventeen complaints affecting Factories and Workshops were investigated, and in connection therewith 66 notices were served requiring the necessary alterations and amendments to be carried out.

The refuse from the ashpits, dustbins, etc., is collected by the Cleansing Department, and for the most part deposited in tips in different parts of the city. The number of times each ashpit and dustbin was emptied during the year was on the average 18·0, but although this average is moderately good, in certain of the more crowded parts of the city the refuse collects so rapidly that a more frequent removal and cleansing is necessary. During 1919, 805 personal applications were made to the Sanitary Office for the cleansing of ashpits, and 602 applications were received through the post ; in addition to these the sanitary inspectors made 2,362 applications for the emptying of ashpits, etc., which they found to be full and overflowing. The number of these special complaints in 1919 was large, amounting in all to 3,769, as against a total of 2,931 similar complaints in the year 1914.

(D) *Sanitary Inspection of District.* Fourteen hundred tests were applied by the Sanitary Inspectors for the purpose of ascertaining the condition of drains and other sanitary fittings in connection with dwelling-houses and other premises. The following table gives the analysis of the various tests and the results obtained therefrom :—

NATURE OF TEST.	No. of Tests.	RESULT.	
		Positive.	Negative.
Volatile	710	203	507
Coloured water	488	175	313
Smoke	202	128	74
Totals	1400	506	894

Included in the above figures are 418 tests made to the drains of houses where Infectious Disease occurred. Particulars of these are as follows :—

DISEASE.	No. of Tests.	No. found Defective.	Percentage Defective.
Diphtheria	285	38	13.33
Typhoid Fever	25	2	8.00
Other Diseases	108	4	3.70

In 63 cases the system of drainage was such as to render impracticable the application of a test.

The drainage of 17 blocks of property comprising 72 houses were dealt with under Section 41 of the Public Health Act, 1875, as against 118 houses in 1918. These defects were found as the result of tests being applied to the drainage after 5 cases of Infectious Disease; in 3 cases after complaints from the tenants of bad smells in the cellars; in 4 cases after complaints from similar sources of water in the cellar: and in 5 cases from defects found by the District Inspectors during the progress of drainage work. All these cases were dealt with by the City Surveyor after being referred to him by the Health Committee.

97 down spouts have been disconnected from drains and sewers, as against 65 last year. Accounts have been received and passed for payment for the disconnection of 16 down spouts at 12 houses, as against 13 down spouts at 16 houses last year. The total cost of the work involved was £58 6s. 2d., or an average of approximately 70s. 5d. for each down spout. The total amount payable by the Corporation was £28 14s. 3d.

During the year the District Sanitary Inspectors have made 126,317 inspections and visits for the investigation and suppression of nuisances.

The total number of nuisances reported amounted to 14,765.

The following statement shows the nature and amount of work performed by the Inspectors during the year, together with the figures for the five preceding years for the purpose of comparison.

PARTICULARS OF WORK DONE, 1914-1919.

	Number of Cases.					
	1914	1915	1916	1917	1918	1919
<i>Drainage and Sanitary Arrangements—</i>						
Choked drains cleansed	1543	1689	1483	2030	1575	1593
Drains amended	792	905	882	624	596	615
Drains reconstructed	1278	866	265	113	114	113
Extra drains provided	453	374	30	22	2	24
Cellars drained	54	46	28	20	29	36
Drains underneath houses abolished	52	57	34	12	16	2
Drainage systems intercepted from the sewer	18	34	12	6	—	3
Open drain inlets trapped	19	2	11	6	—	8
Waste pipes trapped	84	78	43	41	36	34
Waste pipes disconnected	107	53	59	27	24	14
Rain water pipes disconnected ..	916	693	377	91	65	97
Rain water conductors repaired or renewed	2400	2753	3806	2994	3871	3632
House sinks repaired or renewed ..	109	116	65	112	75	103
New house sinks provided	81	51	34	11	7	9
Water closet pedestals renewed ..	158	148	115	396	272	304
Water closets and flushing apparatus repaired	408	428	326	833	723	734
Water closets cleansed	142	141	246	392	233	193
Water closet apartments cleansed and limewashed	607	912	881	1919	1244	1250
Water closet apartments properly lighted and ventilated	3	47	33	61	32	1
Soil pipes repaired or renewed ..	80	101	69	46	35	66
Indoor soil pipes abolished	2	5	6	—	1	1
Urinals cleansed, amended, or screened	42	39	34	42	47	22
Urinals remodelled	14	4	1	1	—	3
New urinals provided	2	—	1	1	2	1
<i>Privies and Ashpits—</i>						
Privy structures abolished	110	183	20	21	—	9
Deposit of slops in ashpits prohibited	147	53	95	42	85	29
General repairs executed	1016	1053	997	1459	1074	1330
Privy apartments cleansed and lime- washed	86	293	270	629	393	269
Dust bins provided or renewed ..	175	345	432	284	310	375

	No. of Cases.					
	1914	1915	1916	1917	1918	1919
<i>Dwelling-houses, Etc.—</i>						
Dampness excluded	167	197	155	132	150	132
Roofs repaired	357	525	536	369	680	574
General repairs executed	304	679	635	462	611	535
Houses or part cleansed or limewashed	230	294	538	308	284	203
Ventilation improved	23	45	32	33	41	34
Overcrowding abated	61	60	53	19	9	16
Cellar areas cleansed	62	91	94	65	39	29
Caravans removed	97	62	19	33	—	2
Number of houses reported for provision of privies	—	—	—	—	4	—
<i>Courts, Backyards, Stable Yards—</i>						
Paving repaired in yards and passages	286	231	319	329	107	83
Yards and passages newly paved ..	18	31	13	65	1	3
Yards cleansed.. .. .	181	407	673	411	254	200
Passages cleansed and limewashed ..	363	342	206	380	186	151
<i>Keeping of Animals, Etc.—</i>						
Improper keeping of swine prohibited	8	7	2	1	19	9
Improper keeping of fowls, etc., prohibited	55	33	40	24	9	65
Accumulations of offensive matter removed	227	279	290	139	125	159
Accumulations of manure removed	156	228	155	45	23	51
Manure pits repaired	13	24	10	6	4	1
Manure pits provided.. .. .	3	6	2	—	—	—
<i>Miscellaneous Nuisances—</i>						
Dangerous places made secure ..	171	165	248	327	296	272
Effluvium nuisances abated	12	43	15	14	23	7
Other unclassified nuisances abated	11	30	21	6	22	10
<i>Special Inspections—</i>						
Graveyards	300	342	439	148	101	67
Offensive trade premises	519	591	530	343	298	865
Schools inspected	1104	1097	1085	1002	681	723
Zymotic diseases investigated and subsequent visits	2154	2458	2574	1492	1506	2169
Complaints specially investigated ..	1341	1428	1333	1438	1535	2093

The number of statutory notices served for the abatement of nuisances was 5,173, as against 4,653 last year.

The number of preliminary notices served for dangerous places to be made secure was 48 as against 32 last year.

In default of compliance with notices served 26 cases were heard before the City Magistrates and fines and costs amounting in the aggregate to £6 3s. 6d. were inflicted. In 8 cases Orders made by the Court were subsequently complied with in the time specified in the Orders. In 4 cases the necessary work was carried out before the hearing in Court, and the costs paid into Court. In 13 cases adjournments were granted to enable the work to be completed, and in each case this was done to the satisfaction of the Corporation. In the remaining case a small fine was inflicted.

During the year 859 complaints as to nuisances were made at this office, either personally or by letter. Last year the number was 711.

The number of dangerous and unfenced places dealt with under the direction and supervision of the Inspectors of this Department was 272, as against 296 last year.

Sixty-seven visits have been made to the various graveyards in the city by the District Inspectors as against 101 the previous year. No irregularities were observed.

There have been no additions to the number of urinals or underground lavatories in the city during the past year.

One hundred and eight cases of soldiers and civilians who have arrived in the City after suffering from or having been in contact with various forms of Infectious Disease have been under inspection.

These cases were kept under observation during the requisite period and any suspicious symptoms arising therefrom at once communicated with the Medical Officer of Health.

MATTERS REFERRED TO THE INSPECTOR OF NUISANCES BY THE HEALTH VISITORS.

Nature of Defects.	1914	1915	1916	1917	1918	1919
Damp houses	34	10	13	30	51	46
House roofs, walls and ceilings defective	43	75	32	29	104	97
House windows defective	21	—	2	4	19	16
Cellars containing water	5	—	3	5	10	8
Structural dilapidations	5	—	4	5	—	45
Bad smells	13	14	46	23	23	20
Choked or defective drains	32	39	17	60	184	120
Chimney flues defective	2	2	2	9	13	13
Dangerous places	3	—	3	2	4	5
Rainwater conductors defective	9	6	4	9	54	42
Defective water supply fittings	9	—	1	19	38	23
Defective w.c. pedestals and fittings	45	12	11	33	112	55
Choked water closets	38	11	12	37	69	26
Want of repairs to privies and ashpits	58	16	10	39	93	83
Filthy privies and water closets	2	3	—	6	7	2
Defective yard flagging	14	1	1	3	—	1
Foul accumulations.. .. .	5	2	—	2	16	15
Filthy and verminous houses	—	3	—	12	17	21
Filthy yards	—	4	1	4	—	5
Overcrowding	—	8	3	6	12	17
Miscellaneous	13	12	1	5	32	47
Totals	355	169	124	325	858	707

MATTERS REFERRED TO THE CITY SURVEYOR'S AND OTHER DEPARTMENTS.

Dangerous places	197
Foul and defective sewers and sewer vents	6
Gullies requiring breaking down to	7
Defective paving and flagging	18
Buildings erected in back yards	6
Miscellaneous	3
Wastes of water (Waste Water Department)	764
Choked street gullies (Street Cleansing Department)	2393

*(E) Workshop and Shop Inspection, &c.***(1) FACTORY AND WORKSHOP ACTS, 1901.**

INSPECTIONS. The total number of workshops on the register is now 3,179, and of bakehouses 359, as compared with 2,845 and 359 respectively last year.

	Workshops	Bakehouses
Visits made by the Shop Inspectors	3,022	1,191
" " Sanitary Inspectors	1,460	—
Total	4,482	1,191

Sixty-nine employers were found who had failed to keep on their premises a list showing the names and addresses of all persons employed by them outside such premises, as required by the Factory and Workshop Act, 1901. With the exception of one case the offenders were warned. In the remaining instance the employer was prosecuted and fined 20s. and 2s. costs.

Four hundred and eighty-six employers who had failed to send in on the 1st of February and the 1st of August a list of outworkers employed by them, as required by the Factory and Workshops Act, 1901, were warned, and allowed one month's grace to enable them to comply with the requirements, as a result of which 477 lists were duly received within that period. In the remaining 9 instances the employers were prosecuted, and total penalties and costs amounting to £5 8s. 6d. were imposed.

Sanitary Defects in Workshops, etc.—The following is a summary of the sanitary and other defects found to exist in workshops, workplaces, and bakehouses. With slight exceptions the defects have all been remedied.

The Factory Inspectors (both male and female) in pursuance of Section 5 of the Factory and Workshop Act, 1901, have made 117 complaints in writing to the Town Clerk, relative to the sanitary condition of factories and workshops in the City. The Inspectors investigated the complaints and where necessary caused statutory notices to be served for the various breaches of the Act.

At the close of the year the requirements of nearly all the notices had been complied with.

Particulars.	Number of Cases.
Workshops without Abstract of the Factory and Workshop Act (notified to H.M. Inspector of Factories)	169
Other reports to H.M. Inspector of Factories	13
Dirty workshops limewashed and cleansed	369
Dirty bakehouses limewashed and cleansed	232
Workshops with insufficient closet accommodation ..	48
Workshops with foul or defective w.c.'s or privies ..	684
Workshops where additional ventilation was required..	62
Overcrowded	2
Gas stoves without provision for carrying off fumes ..	37
Dangerous places in workshops	25
Baking underground without certificate.. .. .	3
Various other nuisances	401
Total	2045

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES
AND HOMEWORK.

I.—INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR
INSPECTORS OF NUISANCES.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
FACTORIES (Including Factory Laundries)	867	78	—
WORKSHOPS (Including Workshop Laundries)	4735	152	—
WORKPLACES (Other than Outworkers' premises in- cluded in part 3 of this Report)	91	11	—
TOTALS	5693	241	—

II.—DEFECTS FOUND.

Particulars.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts—</i>				
Want of cleanliness	384	384	...	...
Want of ventilation	62	62	...	...
Want of drainage of floors	2	2	...	...
Other nuisances	662	662	...	...
* Sanitary accommodation { insufficient	104	98	...	...
{ unsuitable or defective	721	721	...	...
{ not separate for sexes	23	20	...	...
<i>Offences under the Factory and Workshop Act—</i>				
Breach of special sanitary requirements for bakehouses (SS. 97 to 100) .. .	232	232	...	...
TOTALS	2190	2181	...	—

* Section 12 of the Public Health Acts Amendment Act, 1890, adopted.

III.—HOMEWORK.

NATURE OF WORK.	OUTWORKERS' LIST, SECTION 107.									
	List received from Employers.					Notices served on Occupiers as to keeping or sending lists.		Prosecutions.		
	Sending twice in the year.		Sending once in the year.			Outworkers.	Con-tractors.	Work-men.	Failing to keep or permit inspection of lists.	Failing to send lists.
	Lists.	Con-tractors.	Outworkers.	Work-men.	Lists.						Con-tractors.	Work-men.
WEARING APPAREL—	280	240	441	19	23	32	246	1	1	
(1) Making, &c.	2	8	...	...	2	...	2	...	...
(2) Cleansing and Washing	16	30	37	1	28	3	15	...	...
Furniture and Upholstery	2	...	7	...	...	...	1	...	...
Curtains ... ..	...	4	...	1	5	4	1	...	...
Electro	4	4	15	...	1	...	4	...	...
Umbrellas, &c. ....	...	...	...	...	...	...	...	...	...
Locks, Latches and Keys	...	...	...	...	...	...	...	...	...
Household Linen ...	4	2	4	...	...	...	...	...	...
Paper Bags ... ..	...	...	...	1	1	...	2	...	...
Button Carding ...	...	...	...	1	...	6	2	...	...
Weaving, &c.	248	475	348	45	76	40	223	1	8	
TOTALS	556	763	852	68	136	85	496	1	9	

IV.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the year.		Number.
Important classes of work-shops, such as workshop bakehouses, may be enumerated here.	Workshops	3179
	„ Bakehouses	359
	Total number of workshops on Register ...	3538

V.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Acts (S. 133, 1901)	169
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Acts (S. 5, 1901)	117
Notified by H.M. Inspector	119
Reports (of action taken) sent to H.M. Inspector	13
Other	13
Underground Bakehouses (S. 101) :—	
In use at the end of the year	37
Total	455

(2) SHOP ACTS 1912 AND 1913.

The number of visits and investigations made to shops where young persons are employed was 5,666. In 83 shops the employers had failed to exhibit the notice referring to the provisions of the Act, and stating the number of hours during which young persons may be employed. The employers were cautioned. Ten young persons were employed in shops after having been previously on the same day employed in a Factory or Workshop for the full number of hours per-

mitted by the Factory and Workshop Act. In one case the employer was prosecuted and fined 5s. and 5s. costs. In the remaining 9 cases the employers were warned that a repetition of the offence would involve prosecution.

Special visits were made to 486 shops where female assistants are employed, and in one case it was found that no seats were provided, but after warning this was remedied at once.

In 66 cases it was found that no notice had been fixed specifying the closing day. Seventeen shops were found open and the occupiers selling non-exempted articles ; in 5 cases proceedings were taken against the offenders, and the remainder were warned. Ninety-one shops were found open, and the occupiers not displaying the mixed trade notices specifying the exempted trade for which they were remaining open after the closing hour on the weekly half holiday. All these persons were warned that a repetition of the offence would involve them in legal proceedings.

In 244 cases it was found that the employer had failed to provide the prescribed form, relating to their assistants' weekly half holiday. With one exception these employers were all first offenders and they were cautioned, in the remaining instance the employer was prosecuted. In 13 cases shop assistants were found employed during their weekly half holiday, as these employers were all first offenders they were cautioned. Seventeen cases were found where assistants were not having the correct intervals for meals, as prescribed by the Act, and the offenders were cautioned.

Closing Orders. A number of visits have been specially made at night after the closing hour in connection with Closing Orders affecting various classes of shops. Closing Orders are now in force affecting the following classes of shops :—Butchers', Hay, Straw and Corn Merchants', and Jewellers'. Two shops were found open in contravention of these Orders ; and the occupiers were warned that a future offence would involve prosecution. Thirty-nine occupiers of shops were found not to be displaying official copies of the Closing Orders ; as these were all first offenders they were cautioned.

The Compulsory Early Closing Order for all classes of shops, has been extended to cover the whole of the year, and not as at first intended for the winter months only. This Order, which requires shops to be closed at 8 p.m. on every day except Saturday, and not later than 9 p.m. on the evening of Saturday, has been very well observed and appreciated by nearly all classes of shopkeepers. At the request of the Chief Constable the Shops Inspector gave assistance in the carrying out of the order.

PROSECUTIONS.

The following summary shows that 7 prosecutions were undertaken under the Shops Act, 1912, and fines amounting to £3 15s. and 8s. 6d. costs were imposed.

Nature of Offence.	No. of Cases.	Penalties.			Costs.		
		£	s.	d.	£	s.	d.
Failing to fix shop assistants weekly half holiday form	1	0	10	0	—		
Failing to observe weekly half holiday	5	3	0	0	0	3	6
Employing youth after factory ..	1	—			0	5	0

(3) RAG FLOCK ACT, 1911, ETC.

The Senior Shops Inspector obtained and submitted to the City Analyst for analysis 10 samples of flock all of which were found to conform to the standard prescribed by the Local Government Board's Regulations.

Fabrics (Misdescription) Act, 1913. The Shops Inspector has been unable during the year under review to obtain any samples of fabrics to which were attributed expressly or inferentially the quality of non-inflammability or safety from fire.

(F) Premises Etc., Controlled by Bye-Laws or Regulations.

(1) COMMON LODGING HOUSES.

At the end of the year there were 20 registered Common Lodging Houses in the city, comprising 114 sleeping rooms, and affording accommodation for 1,141 persons.

Three Common Lodging Houses have been closed during the year, viz. :—148, Sunbridge Road ; 135, Adolphus Street, and 11, Adelaide Street.

Application for the transfer of the registry of the keepers of Common Lodging Houses has been made in 4 cases, which were granted.

The supervision of these places is still being carried out by the District Sanitary Inspectors, who have made a total of 844 inspections during the year.

The total number of lodgers frequenting these places was 335,132, as against 331,199 for the previous year, this being an increase of 3,933.

The following table shows the proportion of single men, single women, young persons, children, and couples frequenting these houses :—

ADULTS		Couples	8 to 21 years		Under 8 years	
Males	Females		Males	Females	Males	Females
297348	23954	6227	459	917	—	—

The whole of the houses have been cleansed and limewashed in accordance with the provisions of the Public Health Act, 1875

Prosecutions. Police Court proceedings were instituted against the keeper of a Common Lodging House on 13 counts for breaches of the Regulations affecting Common Lodging Houses. The 13 summonses were dismissed (proved) on payment of costs amounting to £2 5s. 6d.

(2.) CANAL BOATS.

The number of canal boats inspected within the City boundary was 140. Twenty-three boats did not comply with the Canal Boats Acts and Regulations. The following is a detailed list of the breaches found to exist :—7 no certificate of registration on board, 1 boat not properly marked and numbered, 6 cabins required painting, 11 decks required caulking, 4 general repairs required. Total number of breaches, 29.

Statutory notices were served and complied with. No cases of infectious disease were notified during the year. At present there are no boats registered with this Authority. It will be observed from this list of offences that with few exceptions the boats coming under the supervision of the Authority were generally in good condition.

(3) OFFENSIVE TRADES, Etc.

Under the Bradford Corporation Act, 1913, Sec. 64, any consent given to the establishment of an offensive trade is given for a limited period only. The Council have made bye-laws regulating the following offensive trades :—Manufacturer of manure from putrescible animal matter, oil distiller and refiner, hide and skin dealer, rabbit skin dealer, blood boiler and blood drier, bone boiler, fellmonger, tallow melter and fat melter or fat extractor, tripe boiler, size maker, gut scraper, and fish frier. The number of offensive businesses to the establishment of which the Council have consented is 333, of which 278 are fish friers and 26 tripe boilers. The number of visits of inspection to these premises in 1919 was 865, and generally speaking the trade was being carried on carefully and the premises were found in good sanitary condition. Only one notice was served for sanitary defects, several minor defects being remedied at the verbal request of the Inspector. There were 5 persons prosecuted for establishing an offensive trade without the consent of the authority, these five cases were fish friers.

(4) UNDERGROUND SLEEPING ROOMS.

Prior to the war the local authority had closed practically all the cellar dwellings and basement dwellings in Bradford, and apart from

these there were no underground rooms used for sleeping accommodation in the city. There was therefore no need for regulations in respect of underground sleeping rooms in Bradford under the Housing and Town Planning, etc. Act, 1909, Sec. 17 (7). Now owing to the scarcity of housing accommodation many basement dwellings previously closed have become tenanted, and because of the present emergency in housing, action has been suspended in all but the most vitally urgent cases. The need for making regulations for underground sleeping rooms has therefore again arisen, but as it is only due to circumstances which it is hoped will be very temporary in character it does not seem judicious to resort to this expedient in the meantime as the previous accepted standard ought to be maintained.

(5) SCHOOLS.

The number of visits made for the sanitary inspection of schools in 1919 was 723.

The majority of the schools are provided with trough closets of varying types, and while this kind of convenience is not ideal for the purpose, they were generally found in a satisfactory sanitary condition. In 5 schools privies are in use, and in 3 there are pail closets, notices for the conversion into water closets have been served in 4 of these cases.

The urinal accommodation is generally in the schools insufficiently flushed with water. The lavatory accommodation is generally satisfactory, while the yard surface at some of the schools is very rough and unpaved.

The whole of the schools are provided with water from the Corporation mains, and with one exception were found satisfactory and adequate, in this case the service pipe was too small.

III.—FOOD.

(A) MILK SUPPLY.

So far as can be estimated it would appear that the average quantity of milk consumed in the city in 1919 daily amounted to about 12,100 gallons, of which about 7,300 gallons were produced within the city boundaries, and about 4,800 gallons outside. There are 400 farms within the City area, and of these 380 are dairy farms with 742 cowsheds, housing approximately 4,120 dairy cows.

The inspection of dairy cattle is carried out by a veterinary inspector (Mr. C. Pitts, M.R.C.V.S.), who made during the year 2,494 visits to dairy farms and inspected on 5,515 occasions cowsheds in the city; at these inspections 31,319 examinations were made of dairy cattle, the dairies, can-houses, and milk-vessels were also inspected. The Veterinary Inspector collected and examined 606 samples of milk, 74 contained pus, 10 contained tubercle bacilli, and the rest were negative; he also examined 195 specimens of mucus expelled by dairy cows coughing which were collected for tubercle bacilli, 75 were positive and 120 negative. Fifty-one samples of milk were obtained and submitted to Leeds University to be tested by inoculation tests; one of these was reported to be tuberculous.

The animals found tuberculous were kept under observation. Marks of identification are taken and the udders examined and samples of milk taken at short intervals to ascertain if the milk is tuberculous or the udder has become infected with tubercle bacilli.

In many cases the animals were under observation for periods as long as six and nine months before the udder became invaded with tubercle bacilli, they were then unfortunately sold to dealers and lost sight of, as there is no power in operation compelling the slaughter, detention or regulating the disposal of these diseased dairy cows, many of which were yielding two to three gallons of infected milk when they were lost sight of.

In addition to these bacteriological examinations by the Veterinary Inspector samples of mixed milk purchased from dairymen during transit from the cowkeeper to the dairymen from farms where defective udders were known to exist were examined, but these were found to be free from pus and tubercle bacilli.

In the routine examinations of dairy cattle 75 dairy animals were found to be suffering from tuberculosis, 10 of which were affected with tuberculosis of the udder. All these affected animals were sold to dealers and lost sight of. 45 dairy cows suffering from tuberculosis but not affected in the udder were sold to dealers and lost sight of, and 20 tuberculous dairy cows were destroyed at knackers' yards. Several complaints of milk were investigated, some samples contained dirt, others pus and blood, but these were remedied.

Five cases of suspected anthrax in dairy cattle were reported, 2 of which were confirmed by the Veterinary Inspector of the Board of Agriculture. These were destroyed and all necessary precautions taken to avoid further outbreaks. The infected places were visited every other day for 10 days to examine the animals in contact with a view to safeguarding the milk. The infected places were under the supervision of the Police during the time the cattle were isolated and while the restrictions of the order applied. At one dairy farm there was a second outbreak of Anthrax following immediately after the first. This was due no doubt to the fact of the first animal being bled on the premises.

Cowsheds. There were 5 persons registered as cowkeepers and milk purveyors, three warning notices were sent to cowkeepers to clean their premises, thirty notices were sent to cowkeepers to lime-wash their cowsheds, five notices sent to cowkeepers to prevent nuisances from the manure pit, two notices sent to cowkeepers to comply with the regulations of the Dairies, Cowsheds and Milk Shops Orders or close the cowsheds, one notice was sent to a cowkeeper to remove swine from the cowshed. All these notices were complied with.

Milk Shops, Dairies, and Purveyors of Milk. There were at the end of the year 252 vendors of milk registered and residing within the City. During the year 10 new milk purveyors were registered.

These registered milk vendors may be classified as follows:—

Cowkeepers and retailers	109
Retailers only (in the streets or from their homes) ..	101
Milkshops (including dairies, confectioners, small grocers, restaurants, and other shops)	42

The number of visits made to these premises was 420, and generally the premises were found in a fairly satisfactory state. In addition to these 252 vendors residing in the city 40 dairymen came into the city from surrounding districts to sell milk by retail.

The milk supply produced within the city is supplemented from 181 sources outside the boundary. From these sources the milk arrives in Bradford in 127 cases by rail, in 14 by tramways, and in 40 by road. The total amount of milk produced outside the city boundary and consumed within is estimated to be about 4,800 gallons daily.

Chemical Examination of Milk. During the year 479 samples of milk were analysed by the City Analyst, and the results are shown in tabular form on the following page. These show that 2·1 per cent. of the samples gave an analysis under 3·0 per cent. of fat, and 79·3 per cent. over 3·5 per cent. of fat, whilst 4·8 per cent. of these samples gave an analysis under 8·5 per cent. of non-fatty solids, and 62·0 per cent. over 9·0 of non-fatty solids.

The total number either below 3·0 per cent. of fat or 8·5 per cent. of non-fatty solids was 33 or 6·8 per cent. of the samples.

RESULTS OF MILK ANALYSIS, 1919.

Per cent.	Fat																				Total			
	Under 2.5	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3		4.4	4.5	4.6 over
Under 7.5			1									1					1							3
7.5																								1
7.6																								1
7.7												1												1
7.8																								1
7.9																								1
8.0											1													4
8.1																								3
8.2																								3
8.3																								6
8.4																								1
8.5																								27
8.6																								20
8.7																								24
8.8																								34
8.9																								54
9.0																								77
9.1																								70
9.2																								68
9.3																								42
9.4																								29
9.5																								4
9.6 and over																								7
Totals ...	1	1	2	1	3	2	7	12	18	23	29	35	48	43	43	29	45	30	19	24	17	14	33	479

Non-Fatty Solids.

Municipal Milk Depot. The business done at the Milk Depot is shown in the following tabular statement:—

	1917-18	1918-19	1919-20
Sterilized Milk sold (pints)	7,875	Nil	Nil
Raw Milk sold, wholesale and retail (galls.)	42,263	31,381	19,410
Raw Milk supplied to Institutions (galls.)	71,353	78,663	87,328

Milk and Cream Regulations 1912 and 1917. The number of samples examined for preservative was 480 of milk and 2 of cream ; one sample of cream was reported as containing preservative and the vendor was cautioned after explanation was given. In 10 instances samples were submitted to verify or otherwise the statement on the label, and in 2 instances this statement was in a minor sense found incorrect. In all 10 cases submitted of preserved cream the fat percentage was above 35.

The following table shows the particulars of analyses of these samples.

ANALYSIS OF PRESERVED CREAM.

No. of Sample.	Percentage of Boric Acid indicated in the Statutory label.	Percentage of Boric Acid found in the Cream.	Percentage of fat in the Cream.	Where purchased.
567	0.4	0.46	49.67	Fruiterer's Shop.
577	0.4	0.35	42.77	Small Dairy.
578	0.4	0.71	48.88	Small Dairy.
573	0.4	0.30	39.0	Small Dairy.
574	0.4	0.24	39.6	Small Dairy.
575	0.4	0.35	51.26	Small Dairy.
576	0.4	0.24	50.71	Small Dairy.
587	0.4	0.35	44.96	Small Dairy.
588	0.4	0.35	48.94	At place of delivery from large dairy in the South of England.
589	0.4	0.34	48.71	do.

The unofficial sample No. 567 was followed by No. 575, an official sample.

The unofficial sample No. 578 was followed by the official samples Nos. 587, 588 and 589. The former was purchased at the dairy and the latter two obtained from a consignment from the South of England.

Milk (Mothers and Children) Order, 1918. Recommendations for milk free of cost or under cost price are made by the medical officers of the various clinics at which mothers and children attend. The economic circumstances are gone into by a special sub-committee which meets weekly, and the cases determined. During the year 1919 milk was distributed free of cost or under cost price in 1,404 cases.

(B) SLAUGHTERHOUSES AND MEAT INSPECTION.

The number of private slaughterhouses within the city is 42, and there is one knacker's yard. Fourteen of these are subject to annual license, and 28 are registered slaughterhouses. The knacker's yard is licensed.

One thousand and fifty-nine visits have been paid to these premises during the year. Two thousand one hundred and eighteen visits have been made to premises where potted meat and sausage are prepared. These places are generally found to be clean and satisfactory.

There has been one seizure during the year, viz. :—320 lbs of bacon which was in a putrid condition.

There has been one case of Anthrax discovered which was referred to and dealt with by the Police under the provisions of the Contagious Diseases (Animals) Act.

The number of carcasses condemned wholly or partly was 1,377. These were as follows :—

CARCASSES WHOLLY OR PARTLY CONDEMNED AND DESTROYED.

	Wholly	Partly	Total
Cows	175	392	567
Heifers	29	66	95
Bullocks	10	41	51
Calves	185	22	207
Sheep	207	32	239
Pigs	67	134	201
Horses	—	17	17
Totals	673	704	1377

The total weight of meat found unwholesome or unsound and destroyed was as follows :—

WEIGHT IN LBS.

Beef	110,112
Veal	13,662
Mutton	11,256
Pork	10,538
Offals	37,352
Total	182,920lbs.
81 Tons, 13 cwts., 24 lbs.	

In addition the following unclassified food stuffs were dealt with as being unwholesome and destroyed :—

10,570 lbs of frozen Mutton, 3 cases of Ox Livers, 82 tins of Corned Beef, 1 case of Eggs, 22 tins of Cooked Ox Tongue, 36 Ox Tails, 4 bags of Offals, 12 tins of Fruit, 60 tins of Condensed Milk.

The total number of animals slaughtered in the public abattoirs is as follows :—

	St. James's	Bolton Lane	Total
Beasts ..	15374	2353	17727
Sheep ..	34292	3550	37842
Lambs ..	3191	2319	5510
Calves ..	12669	11	12680
Pigs ..	8911	856	9767
Horses ..	—	171	171
Totals ..	74437	9260	83697

Of these animals 416 beasts and 95 pigs were found tuberculous. The extent and incidence of the disease is shown in the following table:—

	Beasts		Pigs	
	No.	Per cent.	No.	Per cent.
Wholly destroyed ..	122	0.68	37	0.37
Partially destroyed ..	33	0.18	16	0.16
Internal organs only destroyed ..	261	1.47	42	0.43
Totals	416	2.33	95	0.96

I am indebted to Mr. Frank Matthewman, Markets Superintendent, for the particulars as to the total number of animals slaughtered at the public abattoirs.

(C) OTHER ARTICLES OF FOOD.

The total quantity of fish, game, poultry, fruit, and vegetables destroyed during the year amounted to 80 tons, 16 cwts., 1 qr., 17 lbs.

The number of rabbits destroyed during the year was 22,663, as compared with 8,773 in 1918. 2,487 were English and Scotch, and 20,176 Colonial.

The weights of the various food stuffs destroyed are as follows:—

	Tons.	cwts.	qrs.	lbs.
Rabbits	22	13	3	—
Game and Poultry	—	2	2	22
Tinned goods.. ..	—	2	—	15
Fish (wet)	21	3	2	13
Fish (dry)	3	5	1	6
Shell Fish	5	14	1	—
Vegetables	11	16	1	14
Fruit	15	15	1	3
Sundries	—	3	—	—
Total	80	16	1	17

A large amount of the waste was due to delay in transit.

Seventeen applications were entered on the book at the Markets

Three hundred and ninety personal applications were made to the Inspector requesting inspection of food stuffs, which in each case were found unfit for human food. They were surrendered to the Inspector and subsequently destroyed.

Six hundred and eleven visits were made to retail fish, game, and poultry dealers' premises, and all were found satisfactory.

Fish Curing. During the year 228 visits were made to fish curing premises, which were found satisfactory.

Fried Fish Shops. At the close of the year there were 278 fried fish shops in the city. Six hundred and fifty-nine visits were made to these premises during the year.

Ice Cream. Seven hundred and twenty-two visits were made to ice cream makers' premises.

Several prosecutions for breaches of the Ice Cream Regulations were instituted, Italians being the worst offenders.

PROSECUTIONS.

	No. of Case.	Offence.	Penalties.
			£ s. d.
Seizure.	1	Exposing unsound fish for sale.	5 0 0
	2	Establishing an Offensive Trade (Fish frier) without authority.	3 0 0
Breaches of			
Offensive	3	do.	4 0 0
Trade	4	do.	2 0 0
Bye-laws.	5	do.	3 0 0
	6	do.	5 3 6
	7	Preparing and storing ice cream under dirty conditions.	2 0 0
Breaches of			
the Ice	8	do.	1 0 0
Cream	9	do.	1 1 0
Regula-	10	do.	2 0 0
tions.	11	do.	0 10 0
	12	do.	5 0 0
	13	do.	2 0 0
		Total	35 14 6

(D) SALE OF FOOD AND DRUGS ACTS.

The number of samples of food and drugs taken under these Acts and submitted to the Public Analyst for analysis by the Food and Drugs Inspector was 830. Of these 777 were certified as genuine, and 53 as adulterated or doubtful.

In 18 cases the vendors were summoned before the magistrates for adulteration of food and drugs.

Penalties and costs amounting to £77 10s. 0d. were inflicted.

Under the special arrangement with traders and others 5 samples were submitted for analysis, and found to be genuine.

The following table shows the nature of articles submitted for analysis :—

Article.	Number submitted	Adulterated or Doubtful
Milk	479	31
Milk (condensed, etc.)	8	1
Cream	2	1
Preserved Cream ..	10	2
Butter	15	—
Cheese	4	—
Margarine	34	—
Lard	32	—
Rice	7	—
Pepper	11	—
Mustard	8	—
Jam	10	—
Custard Powder ..	16	2
Coffee	16	—
Cocoa	14	—
Cornflower	11	4
Other Articles of Food	56	—
Drugs	97	12
Totals ..	830	53

IV.—PREVALENCE AND CONTROL OF DISEASE.

(A) INFECTIOUS DISEASES.

The total deaths from Zymotic diseases in Bradford in 1919 was 88, giving a mortality rate for this group of 0.31 per 1,000.

AVERAGE QUINQUENNIAL ZYMOTIC DEATH-RATES FROM 1871.

1871-75 ..	5.5	1891-95 ..	2.3	1911-15 ..	1.2
1876-80 ..	3.1	1896-1900..	2.0	1916 ..	0.6
1881-85 ..	2.1	1901-05 ..	1.7	1917 ..	0.8
1886-90 ..	2.3	1906-10 ..	1.3	1918 ..	1.07
				1919 ..	0.31

The Zymotic death-rate for the first quarter was 0.36; for the second 0.21; for the third 0.40; and for the fourth 0.25.

The diseases to be notified in Bradford are smallpox, cholera, plague, diphtheria, membranous croup, erysipelas, scarlet fever, measles and German measles, whooping cough, ophthalmia neonatorum, infective enteritis, acute poliomyelitis, cerebro-spinal fever, tuberculosis, acute polio-encephalitis, encephalitis lethargica, pneumonia and influenzal pneumonia, malaria, dysentery, scabies, and the fevers known by any of the following names, typhus, typhoid, enteric, relapsing, continued or puerperal.

The number of notifications received during the year was 5,149.

NOTIFICATIONS FOR THE PAST 10 YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Scarlet Fever	870	595	634	529	469	499	317	229	197	248
Typhoid Fever	110	196	256	81	80	93	70	28	32	28
Smallpox	—	—	2	—	—	2	—	—	—	—
Continu'd Fever	2	1	—	—	1	—	3	—	—	4
Relapsing Fever	—	—	1	—	—	—	—	—	—	—
Cerebro-Spinal Fever	—	—	2	—	2	3	2	21	15	18
Puerperal Fever	16	26	16	15	21	30	32	12	13	16
Diphth'ra and Croup	337	481	422	449	318	425	518	281	281	359
Ophth'lma Neonatorum..	—	—	—	—	72	85	86	83	71	91
Erysip'las	170	293	233	225	241	232	165	138	114	110
Poli'myelitis ..	—	—	2	3	2	—	1	2	1	2
Infective Enteritis	—	—	—	—	284	351	175	120	91	86
Measles..	—	—	—	—	—	—	2163	3213	3868	2416
Scabies ..	—	—	—	—	—	—	—	—	509	1298
Polio—	—	—	—	—	—	—	—	—	—	—
Encephalitis ..	—	—	—	—	—	—	—	—	—	1
Encephalitis Lethargica..	—	—	—	—	—	—	—	—	—	1
Pneumonia ..	—	—	—	—	—	—	—	—	—	375
Malaria ..	—	—	—	—	—	—	—	—	—	93
Dysent'ry	—	—	—	—	—	—	—	—	—	3
Total	1505	1592	1568	1302	1490	1720	3532	4127	5191	5149

These numbers do not include the notifications of chickenpox required from time to time, nor notifications of tuberculosis.

Diphtheria. Cases, 359; Deaths, 28; Fatality, per cent., 8.0.

MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	0.12	0.18	0.19	0.18	0.12	0.21	0.16	0.15	0.16	0.10
England and Wales	0.12	0.13	0.11	0.12	0.15	0.15	0.14	0.13	0.14	0.13

The number of cases of Diphtheria in 1919 was more than that for 1918, but the fatality rate was lower. The sickness rate per 1,000 was 1.25. The greatest number of cases occurred in the Great Horton Ward, where 64 cases were notified, and in the West Bowling Ward, where 33 cases occurred.

CASES OF DIPHTHERIA MONTH BY MONTH.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number of Cases ..	21	40	23	18	16	16	23	14	26	34	43	85

The greatest incidence of the disease fell on children at 5 years of age.

CASES AND DEATHS ACCORDING TO AGE.

	Under 1 year	1-2	2-3	3-4	4-5	5-6	7	7-8	8-9	9-10	10-15	15-20	Over 20	Total
Cases ..	4	7	19	22	22	59	26	29	17	19	66	24	45	359
Deaths	1	1	4	2	6	10	1	—	—	—	3	—	—	28
Fatality per cent.	25.0	14.3	21.1	9.1	27.3	16.9	3.8	—	—	—	4.5	—	—	7.8

In 285 cases it was thought advisable to test the house drains where Diphtheria had occurred; the drains were found defective in 38 or 13.3 per cent. of the cases.

The number of cases removed to hospital was 280, or 78.0 per cent. of the cases.

Enteric Fever. Cases notified, 28; Deaths, 9; Fatality per cent., 32·1.

MORTALITY RATES PER 1,000 IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	0·10	0·14	0·18	0·06	0·08	0·07	0·04	0·01	0·01	0·03
England and Wales	0·05	0·07	0·04	0·04	0·05	0·04	0·03	0·03	0·03	0·01

The monthly incidence of the disease is shown as follows:—

CASES OF ENTERIC FEVER MONTH BY MONTH.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number of Cases . .	1	1	—	—	2	1	1	3	8	3	3	5

The sickness rate in Bradford was 0·10 per 1,000 of the population.

In 25 cases it was thought advisable to test the house drains; defects were found in 2 or 8·0 per cent.

The number of cases removed to hospital was 21.

Scarlet Fever. Cases, 248; Deaths, 5; Fatality per cent., 2·0.

MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	0·05	0·03	0·04	0·03	0·02	0·09	0·01	0·01	—	0·02
England and Wales	0·06	0·05	0·05	0·06	0·08	0·06	0·04	0·02	0·03	0·03

The number of cases of Scarlet Fever notified in 1919 is more than that of 1918. The sickness rate per 1,000 in Bradford in 1919 was 0·86. The greatest number of cases occurred in Great Horton Ward, where 33 cases were notified, and in Heaton and Manningham, where 27 cases were notified.

CASES OF SCARLET FEVER MONTH BY MONTH.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number of Cases ..	14	11	8	10	19	22	17	11	23	30	37	46

The cases and deaths classified according to age are seen in the following Table :—

CASES AND DEATHS ACCORDING TO AGE.

	Under 1 year	1-5 years	5-15 years	15-25 years	25-45 years	45-65 years	Over 65 years	Total
Cases	—	32	180	25	11	—	—	248
Deaths.. .. .	—	3	2	—	—	—	—	5
Fatality per cent. ..	—	9·4	1·1	—	—	—	—	2·0

The number of cases removed to hospital was 176, or 71·0 per cent. of the cases.

Small Pox. No cases of or deaths from Small Pox occurred in the City during 1919.

The following Table gives the vaccination returns in the Bradford Union since 1914. The figures have been supplied by Mr. Crowther, the Superintendent Vaccination Officer of the Bradford Union.

VACCINATION STATISTICS.

Year	1 Births	2 Vaccinated	3 Insusceptible	4 Dead	5 Con. Objector	6 Post- poned	7 Removed	8 Un- accounted	Percent- age not Vaccinat'd including Columns 5, 6, 7, 8
1914	4775	1768	7	461	1950	132	321	136	53·2
1915	4249	1559	6	365	1720	136	322	141	54·6
1916	4028	1337	6	355	1767	103	278	182	57·7
1917	3262	1068	18	287	1418	66	251	154	57·9
1918	3221	885	7	288	1367	92	310	272	63·4

The figures for that part of Bradford included in the North Bierley Union, are not available.

Diarrhœa. Deaths, 74 ; Mortality per 1,000, 0·26.

This disease was little prevalent in 1919.

The majority of the deaths occurred in children under one year of age ; 34, or 45·9 per cent. of the deaths occurring at this age period.

DEATHS AT VARIOUS AGE PERIODS.

Age Periods	Months			Total under One Year.	Years.						
	0-3	3-6	6-12		0-1	1-2	2-5	5-15	15-25	25-45	45-65	65 and over.
Deaths ..	10	18	6	34	4	5	2	2	6	9	12

DEATHS OCCURRING MONTH BY MONTH.

	Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Number of Deaths ..	4	9	4	2	7	5	5	7	17	9	3	2	74

The number of notifications of cases of zymotic enteritis received in 1919 was 86.

DEATHS IN EACH WARD FROM DIARRHOEAL DISEASES IN 1919.

Ward	Certified as Infective			Not Certified as Infective			Total Deaths from Diarrhoeal Diseases		
	Under 2 yrs.	Others	Total	Under 2 yrs.	Others	Total	Under 2 yrs.	Others	Total
Allerton	—	—	—	—	—	—	—	—	—
Bolton	—	—	—	—	2	2	—	2	2
Bradford Moor ..	1	—	1	3	—	3	4	—	4
East	—	—	—	2	2	4	2	2	4
East Bowling ..	2	—	2	3	2	5	5	2	7
Eccleshill	—	—	—	—	1	1	—	—	1
Exchange	—	—	—	2	1	3	2	1	3
Great Horton ..	2	—	2	—	2	2	2	2	4
Heaton	1	—	1	2	1	3	3	1	4
Idle	—	2	2	—	—	—	—	2	2
Listerhills	—	—	—	1	2	3	1	2	3
Little Horton ..	3	1	4	2	3	5	5	4	9
Manningham	2	1	3	2	2	4	4	3	7
North	1	—	1	1	2	3	2	2	4
North Bierley East ..	—	—	—	—	4	4	—	4	4
North Bierley West ..	—	—	—	—	3	3	—	3	3
South	1	1	2	1	—	1	2	1	3
Thornton	—	1	1	—	—	—	—	1	1
Tong	—	—	—	—	—	—	—	—	—
West	—	—	—	2	2	4	2	2	4
West Bowling	2	—	2	2	1	3	4	1	5
City	15	6	21	23	30	53	38	36	74

Measles. Cases notified, 2,416; deaths, 6; Mortality per 1,000, 0.02.

Whooping Cough. Deaths, 2; Mortality per 1,000, 0.01.

Puerperal Fever. Cases, 16; Deaths, 11; Fatality per cent., 68.7.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Cases ..	16	26	16	15	21	30	32	12	13	16
Deaths	7	8	9	6	10	17	14	7	4	11
Fatality per cent.	43.7	30.8	56.2	40.0	47.6	56.7	43.7	58.3	30.7	68.7
Number of live births to each death	784	686	621	968	571	298	350	554	968	366

There was, therefore, a slight increase in the number of cases and an increase in the number of deaths from Puerperal Fever in 1919.

Erysipelas. Cases, 110; Deaths, 5; Fatality per cent., 4.5.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Cases ..	170	293	233	225	241	232	165	138	114	110
Deaths	7	14	6	9	2	8	3	2	10	5
Fatality per cent.	4.12	4.78	2.58	4.00	0.83	3.45	1.81	1.45	8.77	4.5

Scabies. Cases notified, 1,298.

The Local Government Board extended the Order which was made by the City Council at their meeting on the 11th June, 1918, for the

notification of Scabies for a further period of twelve calendar months. During the year 1,267 cases have been notified ; of these 107 cases were notified from institutions and 22 cases could not be traced. The number of homes visited has been 852, of which 840 have been visited on more than one occasion. At these visits secondary cases were sought for and arrangements made for the treatment of the sufferers. With the co-operation of the Baths Committee arrangements were made for medicinal baths to be given at Prince Street Cottage Baths on one day per week, which was later increased to three days per week as the cases became more numerous. In all 911 cases have been treated at Prince Street Baths, their personal clothing disinfected there, and in many cases the bed clothing removed to the Disinfecting Station at the same time. In addition to these 911 cases, there were 458 cases treated at home.

Influenza. Deaths, 621 ; Mortality rate per 1,000, 2.16.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Deaths	33	35	22	43	34	74	74	56	708	621

In the first quarter of the year, a third outbreak of Influenza took place.

DEATHS OCCURRING MONTH BY MONTH.

	Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Number of Deaths ..	21	364	182	19	17	1	1	2	—	1	8	5	621

DEATHS ACCORDING TO SEX WEEK BY WEEK

Week ending	Males.	Females.	Total.
Jan. 14th	4	3	7
.. 11th	1	1	2
.. 18th	1	2	3
.. 25th	—	4	4
Feb. 1st	3	2	5
.. 8th	11	27	38
.. 15th	22	27	49
.. 22nd	60	80	140
Mar. 1st	45	83	128
.. 8th	47	59	106
.. 15th	17	29	46
.. 22nd	6	9	15
.. 29th	12	9	21
April 5th	5	3	8
.. 12th	4	3	7
.. 19th	1	1	2
.. 26th	—	3	3
May 3rd	2	4	6
.. 10th	3	3	6
.. 17th	1	—	1
.. 24th	1	1	2
.. 31st	3	1	4
July 19th	1	—	1
Aug. 23rd	1	—	1
.. 30th	—	1	1
Oct. 11th	1	—	1
.. 18th	1	—	1
Nov. 8th	2	1	3
.. 15th	1	1	2
.. 22nd	—	1	1
.. 29th	—	2	2
Dec. 6th	1	—	1
.. 20th	2	—	2
Jan. 3rd	2	—	2
	261	360	621

During the outbreak the disease spread throughout the City, each ward becoming infected in turn. The number of deaths in the wards was as follows:—Allerton, 17; Bolton, 25; Bradford Moor, 43; East, 35; East Bowling, 51; Eccleshill, 22; Exchange, 7; Great Horton, 54; Heaton, 39; Idle, 19; Listerhills, 19; Little Horton, 36; Manningham, 42; North, 25; North Bierley East, 36; North Bierley West, 37; South, 17; Thornton, 11; Tong, 19; West, 20; and West Bowling, 47. The highest mortality from the disease was therefore in the Tong and North Bierley West Wards.

The age and sex incidence of the fatal cases is shown on the following table when it will be noticed that the characteristic of this third outbreak was the very high death-rate shown among persons over 50 years of age and among children under 5 years.

DEATHS AT VARIOUS AGE PERIODS.

Age.	Males.	Females.	Total.
-5	56	55	111
-10	11	12	23
-15	8	4	12
-20	13	13	26
-25	6	28	34
-30	18	36	54
-35	15	23	38
-40	8	14	22
-50	30	24	54
-60	37	55	92
60 & over.	59	96	155
Total	261	360	621

The steps taken in the mitigation and prevention of the disease are referred to in the report for 1918.

TABLE SHOWING THE NUMBER OF ATTACKS, DEATHS, ETC., IN AGE GROUPS, FROM ACUTE POLIOMYELITIS, CEREBRO-SPINAL FEVER, AND ENCEPHALITIS LETHARGICA DURING THE YEAR 1919.

	NUMBER OF CASES.																	
	0-1 year.		1-5 years.		5-10 years.		10-15 years.		15-20 years.		20-30 years.		Over 30 years.		Total Number of Cases Notified			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female				
Acute Poliomyelitis		3		
Cerebro-Spinal Fever	17		
Encephalitis Lethargica	2		
No of Cases Removed to Isolation																		
Hospital—																		
Cerebro-Spinal Fever		

* *i.e.*, Recovered with permanent paralysis of one or more groups of muscles.
 † Case female over 30 years, probably not Encephalitis Lethargica.

Cerebro-Spinal Fever. Cases, 17; Deaths, 13; Fatality per cent., 76.5.
Acute Poliomyelitis. Cases, 3; Deaths, 1; Fatality per cent., 33.3.
Encephalitis Lethargica. Cases, 2; Deaths, 1; Fatality per cent., 50.0.

Anthrax. Cases, 8; Deaths, 6; Fatality per cent., 75·0.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Cases ..	5	7	8	13	11	8	19	7	11	8
Deaths	1	4	3	2	2	1	2	3	3	6
Fatality per cent.	20·0	57·1	37·5	15·4	18·2	12·5	10·5	42·9	27·2	75·0

(B) TUBERCULOSIS.

The number of deaths from all forms of tuberculosis in 1919 was 378, giving a mortality rate of 1·31 per 1,000.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Deaths	435	426	463	425	457	438	463	415	449	378

MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	1·51	1·48	1·60	1·44	1·57	1·56	1·64	1·56	1·72	1·31
England and Wales..	1·43	1·47	1·38	1·34	1·36	1·51	1·53	1·62	1·69	—

There was therefore a decrease in the mortality from this cause in 1919. During the past thirty years there has been a reduction in the death-rate from all forms of tuberculosis in Bradford; this is well seen in the following table, which shows the average mortality rate per 1,000 for five yearly periods from 1891:—

AVERAGE MORTALITY RATE PER 1,000 FROM TUBERCULOSIS IN
BRADFORD FOR PERIODS OF FIVE YEARS FROM 1891.

Periods	1891-1895	1896-1900	1901-1905	1906-1910	1911-1915	1916	1917	1918	1919
Average Mortality rate per 1000	2.26	2.12	1.84	1.65	1.53	1.64	1.56	1.72	1.31

(A) *Pulmonary Tuberculosis*. Deaths, 316; Mortality rate per 1,000, 1.10.

RECORD OF PREVIOUS YEARS.

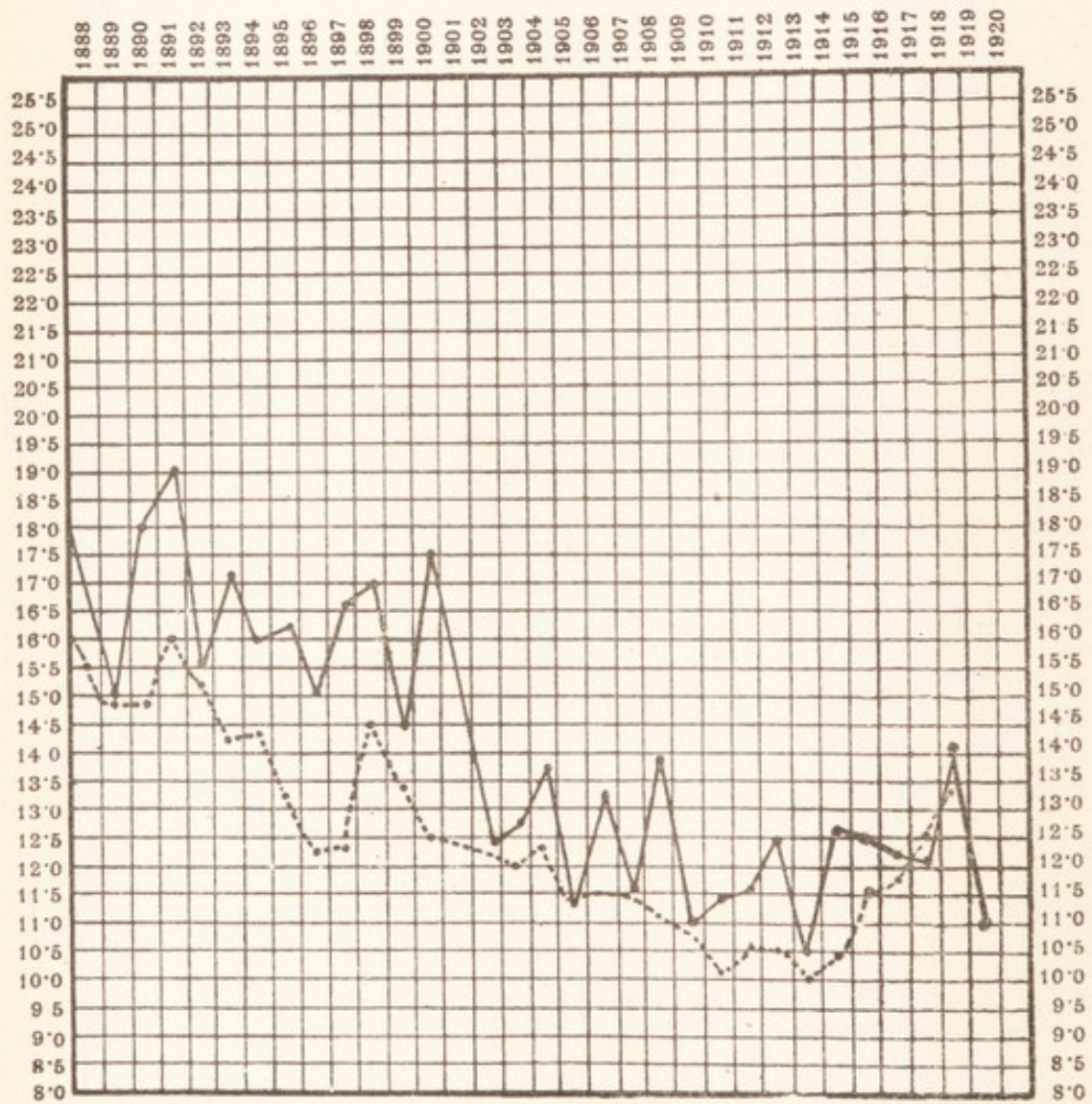
	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Deaths	329	332	364	309	371	350	332	321	368	316

MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	1.14	1.15	1.25	1.04	1.27	1.25	1.22	1.21	1.41	1.10
England and Wales..	1.01	1.06	1.05	1.00	1.04	1.16	1.18	1.25	1.34	—

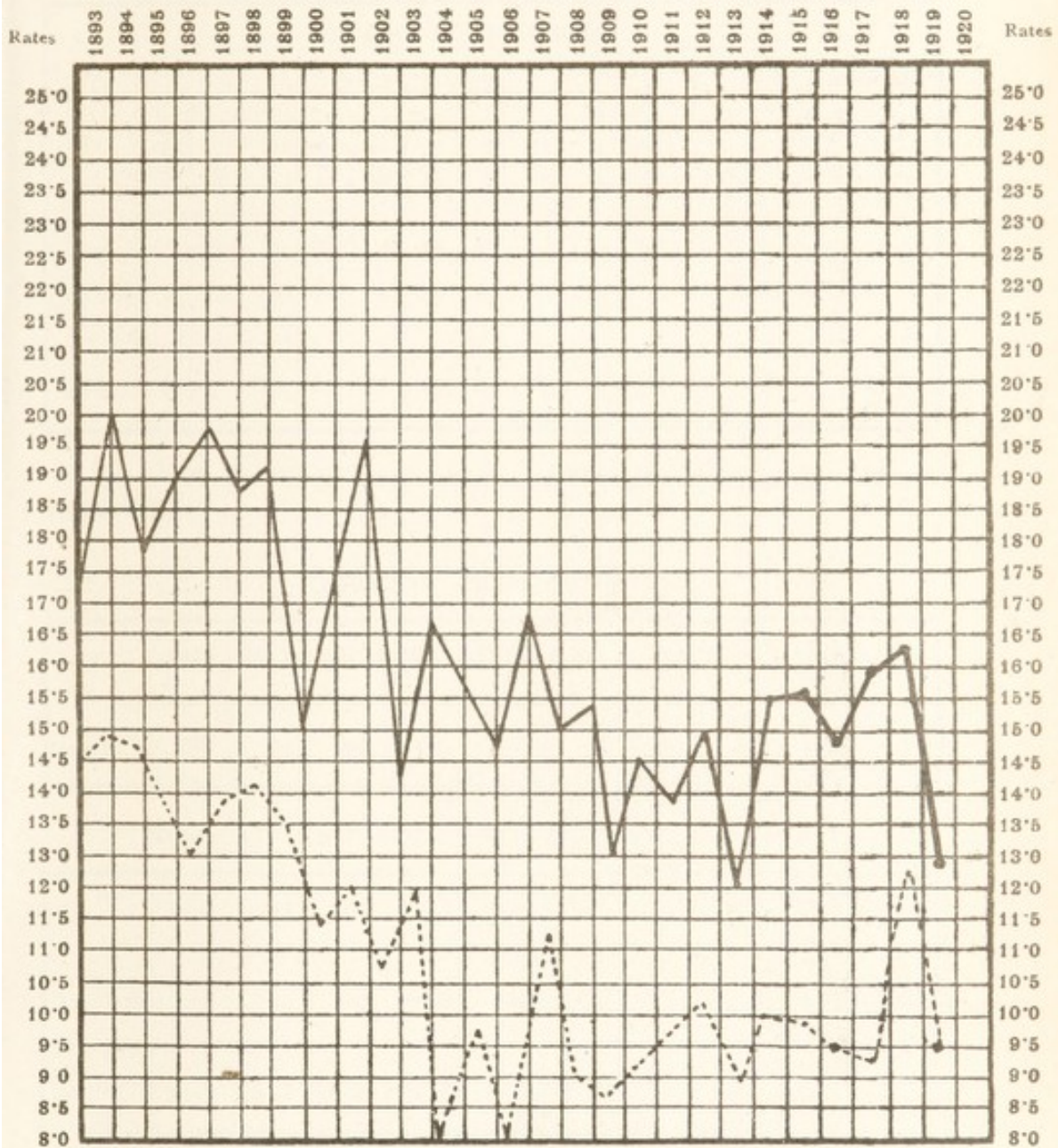
There was a decrease in the mortality rate from pulmonary tuberculosis last year. Considering the deaths in relation to sex the death-rate from pulmonary tuberculosis was in 1919 among males, 1.27 per 1,000, and among females, 0.95 per 1,000. The chart on page 74 shows that the general death-rate in the male sex for the past thirty years has always been greater than that of the female sex, while the fall in the male death-rate has at the same time during that period been less.

DEATH RATES FROM PULMONARY TUBERCULOSIS PER 10,000 OF THE POPULATION
IN ENGLAND AND WALES AND BRADFORD, 1888-1919.

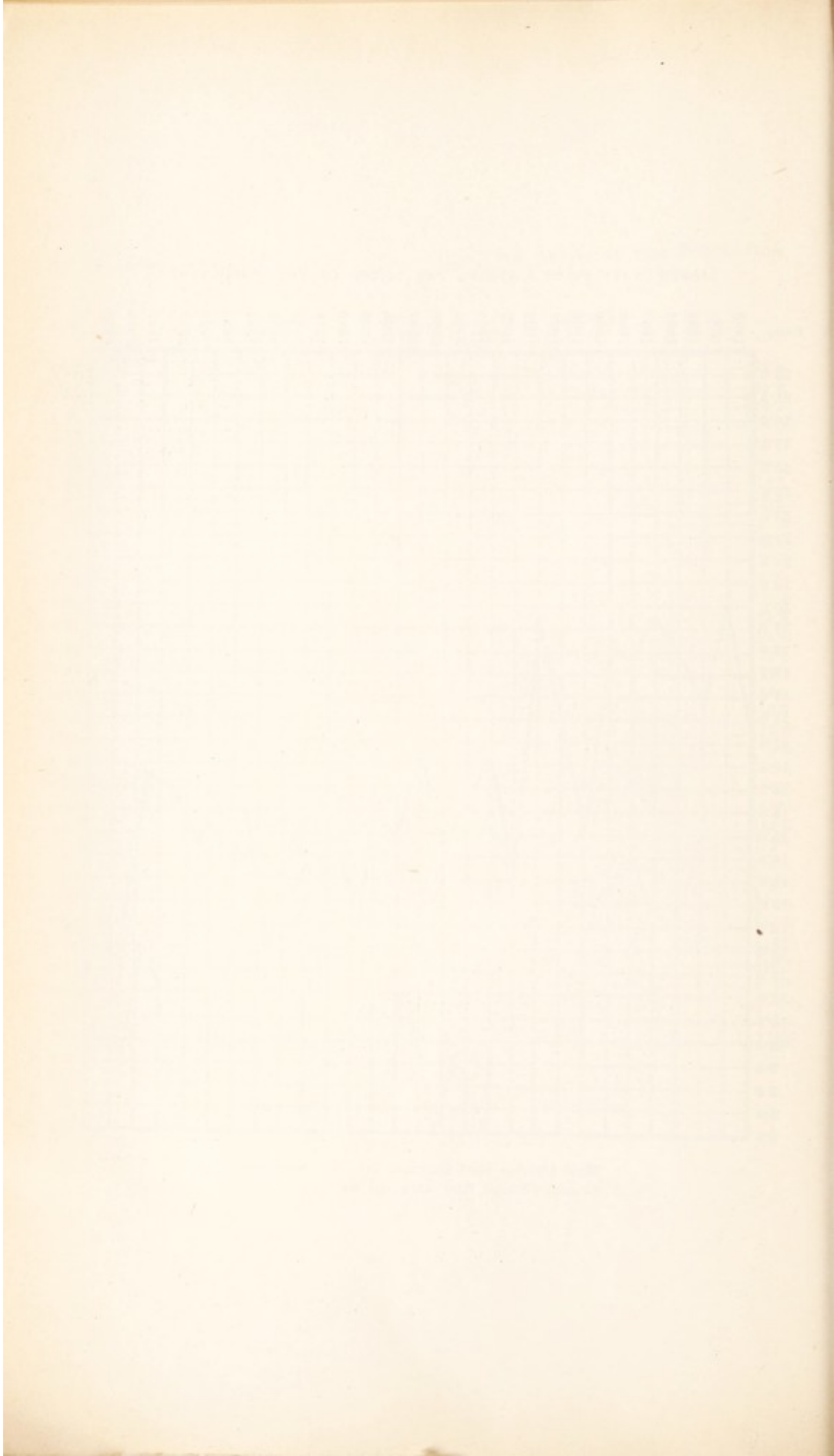


England and Wales indicated by
Bradford indicated by

DEATH RATE FROM PHTHISIS PER 10,000 OF THE POPULATION.



Male Phthisis Rate indicated by —————
 Female Phthisis Rate indicated by



The notifications received numbered 490. These notifications classified according to age and sex are seen in the following table.

NOTIFICATION OF PULMONARY TUBERCULOSIS, 1919.

	PRIMARY NOTIFICATIONS												Total Notifications (i.e., including cases previously notified by other Doctors)
	AGE PERIODS												
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Total	
Males	1	10	15	17	24	24	54	53	34	27	12	271	285
Females	4	11	18	14	23	24	44	26	14	6	4	188	205
Total	5	21	33	31	47	48	98	79	48	33	16	459	490

(B) *Other Forms of Tuberculosis.* Deaths, 62; Mortality rate per 1,000, 0.22.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Deaths	106	94	99	116	86	88	131	94	81	62

MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford	0.37	0.33	0.35	0.39	0.30	0.31	0.46	0.35	0.31	0.22
England and Wales..	0.43	0.41	0.33	0.35	0.32	0.35	0.36	0.37	0.37	—

There has been a marked decrease in the number of deaths and in the death-rate from the forms of tuberculosis other than pulmonary.

The number of cases notified during the year of other forms of tuberculosis was only 70.

The Local Authority in their scheme for the prevention and treatment of tuberculosis have provided (1) an antituberculosis centre, (2) a sanatorium at Grassington (152 beds), (3) hospitals at Bierley Hall (66 beds) and Odsal (84 beds), and (4) arrangements for home visitation, supervision, and after care. The full scheme will provide for the treatment of non-pulmonary as well as of pulmonary cases, but the special accommodation necessary for the former cases has so far not been able to be provided by circumstances attending the war. There has been an undoubted drop in the number of non-pulmonary cases, but the fall in the number notified is probably to some extent due to the want of facilities for the treatment of these cases locally. Bierley Hall and Odsal Hospitals were in full operation throughout the whole year, and the first patients were admitted to Grassington Sanatorium in October, 1919. No particular difficulty is felt in admitting cases to the two former institutions, but there has been some reluctance on the part of patients suitable for admission to Grassington to avail themselves of the opportunities for treatment there. This would seem to have its origin chiefly in the fact that Grassington is a new and unknown institution to the Bradford public comparatively distant from their homes in a lonely district with somewhat trying weather conditions; as the sanatorium becomes better known these objections will gradually disappear. With the opening of Grassington Sanatorium the arrangements for the treatment of early cases of pulmonary tuberculosis in Bradford becomes practically complete and the need for earlier notification in this disease becomes more urgent if full advantage is to be reaped from the facilities provided. The vast majority of the cases are now notified many months or years after the onset of the illness at a time when some amelioration of the disease is the best that can be hoped for in treatment. A much broader view of pulmonary tuberculosis should now be adopted by the public and the medical profession. Diagnosis should not wait on well defined lesions being set up or bacteriological results being got. Among persons badly housed or at unsuitable occupations there should be no reluctance in notifying cases on suspicion if the history of the illness and the family history alone warrants it.

The public have to be taught to recognise that pulmonary tuberculosis is only curable in its earliest stages and early notification and treatment should be welcomed by them and not dreaded. Generally cases are visited on notification by the Health Visitors working in association with the antituberculosis centre, and these visitors endeavour to keep in touch with the patients and keep the centre informed of their progress. Cases requiring after-care are referred to an After-care Committee, the work of which, however, is much hampered by the difficulty of finding suitable employment (referred to in Dr. Vallow's Report below) and the want of funds. At the present time in pulmonary tuberculosis there is no more pressing problem than the devising of some means whereby the sanatorium patient who has been restored to health may be again absorbed in industry.

REPORT BY H. VALLOW, M.D., D.P.H., TUBERCULOSIS OFFICER

The total number of patients examined at the Antituberculosis Centre during the year was 4,700, of which 699 were new cases. Of these 699, 430 were insured and 269 non-insured persons. The number of cases sent to institutions was 397, as follows:—Discharged soldiers, 144; insured men, 66; insured women, 80; non-insured men, 20; non-insured women, 58; and children, 129.

The reintroduction of the discharged Sanatorium or Hospital patient into employment outside the institution is a matter of extreme difficulty. Tuberculosis patients like the rest of the community have very diverse temperaments, and while a number of them will gladly accept the colony regime a large number of our industrial tuberculous will at any rate in the first instance refuse to do so. A preliminary step should be the establishment of a tuberculosis employment bureau where suitable occupations could be found for those able and willing to undertake them. The tuberculous discharged patient is most frequently unable to do a full day's work, he cannot keep pace with his fellows in factory or mill, but he can do with advantage to his health, much part-time work. Some attempt has been made at the dispensary to run such a

bureau, but it is necessary for this to be done now on a much larger scale and to interest many employers of labour in the matter. The problem is an urgent one, for taking the discharged tuberculous ex-service men alone, about 60 per cent in Bradford have been found to be engaged in unsuitable occupations, principally as woollsorters, woolcombers, dyers' labourers, and general labourers, while among patients discharged from institutions in 1919 as fit for work only 50 per cent were able to obtain suitable employment. This of course means a very considerable wastage of effort and ultimate loss of health to these patients.

The relationship of the Antituberculosis Centre and the general medical profession has been reasonably good. There has always been a certain number of practitioners who while not openly hostile to the work have been somewhat apathetic and indifferent, but the great majority have worked harmoniously with the Centre.

There has been little difficulty in getting patients to accept suitable treatment. There will always be a certain number of patients (estimated at about 5 per cent.) who will not accept treatment and perhaps it is in the interests of the remaining 95 per cent. that they should not be pressed to do so as they are apt to do more harm to others at an institution than good to themselves. Much more difficulty is found in getting patients to stay in institutions for the requisite time of treatment, especially ex-service men. These cases are a source of considerable anxiety, they are most frequently discharged from the institution for not carrying out the treatment prescribed, for some misbehaviour, or at their own request. In many instances the home circumstances are bad and they urgently require institutional treatment. They are frequently readmitted after discharge, but they often subsequently again tire of the sanatorium regime and seek their discharge.

REPORT BY J. W. GRAY, M.B., B.Sc., ON GRASSINGTON SANATORIUM.

The Sanatorium was opened for patients on the 15th October, 1919. The total number of patients admitted during the remainder of the year

was 60. Of these 36 were discharged soldiers, 14 insured persons, and 10 uninsured. The total number of patient hospital days was 1,790.

The Sanatorium is situated 30 miles from Bradford, in Upper Wharfedale, on the southern slope of a hill. The nearest station is Grassington and Threshfield, 2 miles off; the nearest village Hebden, 1 mile in the opposite direction. The elevation is 690 feet at the southern boundary, rising to over 900 feet at the northern boundary. The main part of the buildings, the Adult Blocks, Administration Block, and the Power House, are about 800 feet, while the Children's and Isolation Blocks, somewhat lower down the slope, are about 740 feet above the sea level. The grounds include about 54 acres. The merits of the site are the free circulation of the air, the southern exposure, the remoteness from industrial towns with their smoky and polluted atmosphere, and the magnificence of the view. The buildings which are of red brick, with a coating of rough cast, and red tiled roofs, consist of the following: two adult pavilions, one for men and one for women, with 52 beds in each, and a Recreation Room between the two pavilions. A short distance further back is the Administration Block, and behind that, the Power House and Laundry. About 120 yards lower down the slope and to the south of the adult blocks is the children's block, consisting of two pavilions, one for boys, and one for girls, the accommodation in each being for 24. Between these two pavilions are the school buildings. Standing apart from the children's blocks, and on the same line is the Isolation Block.

Adult Pavilions. Each is of two storeys in height, with a duty room for the Nursing Staff in the centre of each floor. On each side of the central duty room are three single bedded wards and five double bedded wards. The single bedded wards are heated by hot water radiators. The double bedded wards are not at present heated. It has been thought advisable, however, that radiators should be placed in all the wards, and it is hoped this will be done before another winter. The single bedded wards are used for the more serious cases, or for patients on admission. The ventilation is through. Each ward has a

door opening in front on the south side, on a concrete platform just wide enough to allow the beds to be pulled out in fine weather. At the back another door opens on a concrete passage, which is used by the patients and staff in passing to and fro between the duty rooms and the various wards. In front there are two windows, one on each side of the duty door. The doors and windows can both be widely opened in fine weather, so that anyone occupying a ward is, to all intents and purposes in the open air. Even when the doors are shut there is a very thorough through draught, through open ventilators placed above the doors and windows. These at present cannot be closed during windy and wet weather. This is unsatisfactory, and it has been decided to place centre-pivot hung sashes in these spaces, which will make it possible to regulate the inlet and outlet of the air, according to the state of the weather. Each patient is provided with a lock-up cupboard in his ward for clothes, boots, etc. One notable feature of the Adult Block is, the arrangement by which it is possible to have a wide verandah on the south side of each floor without having the verandah on the upper storey directly above the one below. This would, to a great extent, prevent sun light from gaining access to the wards on the lower floor. To obviate this difficulty, the upper storey has been displaced backwards and is supported partly by the lower storey, and where it overhangs, by iron pillars. This arrangement not only allows the entrance of sunlight on the south side, but provides a covered way on the north side for the lower floor.

Recreation Room. The room contains a full size billiard table, piano, bookcase, and a number of small tables for playing cards, draughts, etc. This room is used by the men patients only, the women spend their recreation time in the patients dining hall. It is hoped that further accommodation for recreation will be provided in the near future.

Administration Block. Behind the adult pavilion and recreation room, is the administration block. The greater part of the building is two storeys high, except the portion taken up by the Nurses sitting and

dining room, the Patients dining hall, and the kitchen. The main entrance is at the west end. Along the central corridor there are on the right side the office, Medical Superintendent's office, laboratory, Sisters' sitting room, and the Matron's office, and on the left side the dentistry, waiting room, consulting room, and dispensary. On the top storey are quarters for the Nursing Staff. Then comes the Nurses' dining and sitting room. A separate dining room is being provided for the Nurses. Immediately adjoining the Nurses' room is the patients' dining hall. This can accommodate 96 patients. There are 8 tables, and underneath each, where the patients' feet rest, are concrete slabs, heated by steam pipes in a trench below. These keep the patients' feet warm during meal times. In addition, there are two open fire places. Beyond the dining hall is the central kitchen, where all the cooking of the Institution is carried on. The accommodation provided here, has been found to be inadequate, and a considerable addition is being erected. At present the cooking plant consists of three steam heated boilers, two steamers for steaming fish, vegetables, etc. ; one kitchen range, and two paraffin oil cookers. An additional kitchen range and bakers' oven is being provided, together with a few additions to the steam cooking plant. Beyond the kitchen are the stores for meat, milk, dry goods, etc., and also the domestic staff's dining and sitting room, while on the top storey of this building are the quarters for the domestic staff.

Power House and Laundry. Behind the Administration Block is the Power House and Laundry, the latter still unfinished. The plant consists of a large Cornish Boiler for generating steam, which is mainly used up in driving the engine, while a small amount is used in heating the steam pipes underneath the tables in the dining hall. There are two Dynamos, Switchboard, and a large Battery Room.

Children's Blocks. This consists of two separate pavilions, one for boys and one for girls. Each pavilion contains two ten-bedded wards, and four single-bedded wards, with a duty room for the nursing staff in the centre of each. Situated in between the two pavilions are the school buildings, which consist of two small class rooms, and one large day

room. Behind each pavilion are the sanitary annexes, whilst behind the school building is the children's dining hall, situated slightly higher up. All along the front of the children's block is a concrete balcony with a white painted balustrade. In fine weather any patient confined to bed can be wheeled right out of the ward, on to the balcony. At the back is a concrete passage running right along the whole length of the block. There is no heating in the ten-bedded wards. The single-bedded wards are heated by small hot water radiators. The boiler for heating the water for these radiators, together with a boiler for heating the hot water supply in the pavilions is in the basement of each. The ventilation here, also, is very thorough. There are three or four doors on the south and north side of each large ward, which can be thrown wide open, and there are also open ventilators, similar to those which are present in the wards of the adult pavilions. It has been found here, also, that the wind and rain admitted during the wet and stormy weather is a great deal more than necessary for the comfort and well being of the patients. The four single-bedded wards in each pavilion are similar to the single-bedded wards in the adult block.

Lighting. The buildings are lit throughout by electricity generated in the Power House.

Transport. (1) A motor ambulance is provided for conveying patients from Bradford to the Sanatorium. Patients are generally admitted on Saturdays, and as a rule discharged patients return to their homes in the ambulance, on its return journey. (2) A motor lorry is provided for the transport of coal, coke, and other goods from the station. (3) A horse and cart is also provided, chiefly for carting material inside the grounds.

Lines of Treatment. The main thing in treatment is, careful hygienic supervision. The patient's day is regulated so that a certain amount of time is allotted for rest, exercise, work, and recreation, according to the individual capacity of the patient. A generous diet is allowed. Excessive feeding in a Sanatorium is out of date, but the patient is

encouraged, which is not often necessary, to eat well. No specific line of treatment has yet been adopted, but Artificial Pneumo-Thorax will be employed where it is thought advisable.

An X-Ray plant, which is so necessary for the proper carrying out of diagnosis and treatment has been purchased, and arrangements are being made for its installation.

The improvement in the general condition of Sanatorium patients is due: (1) To the stimulating influence on their metabolism, of fresh moving air coming in contact with the skin surface, the nerves in which carry the stimuli to the central nervous system, which send out messages to all the cells of the body, stimulating them to greater activity. (2) To the diet, rich in fat and proteids which help to build up the wasted tissues of the body, and which is generally easily absorbed in larger quantities than is possible in town life, owing to the increased appetite which is a noted feature after the patient has been in the Sanatorium for a few days. (3) Increased amount of rest as compared with home life. (4) Graduated exercise and labour. It is well known that any tissue of the body does not attain its highest degree of development unless it is active. So it is with the muscular system. If the muscles are not used they remain small and undeveloped. The days when patients in Sanatorium over ate, and did nothing, are past. They became fat and breathless, and were fit for nothing on discharge. Now the ideal is, that the patient should go out hard and fit, not flabby and fat. This can only be achieved by graduated exercise and labour.

The sort of work done by the patients here, is, the making of their own beds, mopping floors, sweeping and swilling balconies, cleaning windows, chopping sticks, clipping grass edges, raking, hoeing, lawn mowing, rolling with a roller, sawing wood, and digging with spades of different sizes. What is further required is, more variety of indoor labour for wet weather, when graduated gardening is impossible. At the present, under these conditions, chopping sticks and sawing wood is about all that they can do. An open air workshop where general

carpentry can be undertaken would be a great asset to the Institution. The patients should be allowed to make things for themselves, thus adding greatly to the interest of the work, the Corporation charging them for the material used.

REPORT BY R. F. CHANCE, M.R.C.S., L.R.C.P., ON BIERLEY HALL
HOSPITAL.

During 1919, 180 cases were admitted. Of these 138 were adults (14 years and over), and the remaining 42 were children under 14 years of age.

At the beginning of 1919 there were 46 cases under treatment; at the end of 1919 there remained 49 cases. The next three tables refer only to the 119 cases of pulmonary tuberculosis, 102 adults, and 17 children, discharged during the 12 months.

All classes of cases were admitted to the Sanatorium, advanced and dying cases as well as those in the early curable stage. Nearly half the cases were classed on admission as in 3rd Stage according to the Turban-Gerhardt classification.

ALL CASES.	Stage 1.	Stage 2.	Stage 3.
Adults (per cent.)	25.49	30.39	44.12
Children (per cent.)	41.18	17.64	41.18
All Cases (per cent.)	27.73	28.57	43.70

AVERAGE AGE ON ADMISSION.

102 Adults	28.12 years.
17 Children	8.88 ..
Average	25.38 ..

DURATION OF STAY.

Adults	114.46 days.
Children	160.94 ..
Average	121.10 ..

Before admission to the Sanatorium the patients had been off work for an average period of 20·39 weeks.

When the previous history of each adult patient was investigated, one could trace back the first evidence of tuberculosis for over 25 months on the average whereas the first symptoms of the present illness or attack, dated back on the average for 8 months.

REASON FOR DISCHARGE.

	Adults.	Children.
Fit for work or school	18·63%	47·06%
Improved	13·73%	11·76%
Transferred to other Institutions ..	00·98%	5·88%
Died	17·65%	23·54%
Misconduct	00·98%	—
At own request or at parent's request	33·33%	5·88%
Contrary to medical advice	14·70%	5·88%

Of the 119 cases 17 were too ill to be weighed either on admission or during their stay. Of the 102 patients weighed 87 were adults and 15 were children. Of the adults weighed 69 or 79·31% gained 10·34 lbs., or an average of 10·15 ounces per week; 18 or 20·69% lost 4·33 lbs., or an average of 4·2 ounces per week. All the 15 children gained 7·82 lbs. or an average of 5·43 ounces per week.

In estimating the result of treatment as set out in the following tables, there have been excluded all the cases, 8 in number, who stayed for less than 27 days. Of these 5 died.

RESULT OF TREATMENT.

	Adults.	Children.
Very much improved	9·47%	6·25%
Much improved	18·95%	37·50%
Improved	31·58%	18·75%
Stationary	16·84%	12·50%
Worse	8·42%	6·25%
Died	14·74%	18·75%

Altogether 60% of the adults and 62.5% of the children improved materially under treatment.

CAPACITY FOR WORK.

	Adults.	Children.
Fit for full work or school	9.5%	50.00%
Fit for light work	19.0%	—
Fit for walking exercise	21.0%	12.50%
Fit only for rest or bed.. ..	35.8%	18.75%
Died	14.7%	18.75%

After Results. To ascertain the degree of permanence of the results attained by treatment in the Sanatorium enquiries from 115 ex-patients (representing the 119 discharges during 1919) brought the following results. Cases other than pulmonary tuberculosis are not included.

- 27 were doing full work.
- 11 were doing light or intermittent work.
- 17 were unable to work.
- 22 died in Sanatorium.
- 25 had died since discharge.
- 4 were again in Sanatorium.
- 6 did not reply.
- 3 were lost sight of.

Total .. 115

REPORT ON ODSAL HOSPITAL.

During 1919, 227 cases were admitted. Of these 190 were insured persons, and 37 were uninsured.

At the beginning of 1919 there were 69 cases under treatment; at the end of 1919 there remained 55 cases. The next three tables refer only to the 170 cases of pulmonary tuberculosis discharged during the 12 months.

All classes of cases were admitted to the Hospital, advanced and dying cases as well as those in the early curable stage. Nearly

half the cases were classed on admission as in 3rd Stage, according to the Turban-Gerhardt classification.

(A) *All Cases (including Soldiers and Sailors).*

	Stage 1.	Stage 2.	Stage 3.
Insured (per cent.)	28.66	29.30	42.04
Non-insured	54.55	27.27	18.18
All Cases	30.59	28.82	40.59

AVERAGE AGE ON ADMISSION.

157 Insured	33.59 years.
13 Non-insured	23.7 ..
Average	32.83 ..

DURATION OF STAY IN ODSAL.

Insured	109.84 days.
Non-insured	160.7 ..
Average	113.73 ..

Before admission to the Hospital the patients had been off work for an average period of 19.17 weeks.

When the previous history of each patient was investigated, one could trace back the first evidence of tuberculosis for over 28 months on the average, whereas the first symptoms of the present illness or attack dated back on the average for 8½ months.

REASON FOR DISCHARGE.

Fit for work or school	16.47 per cent.
Improved	9.41 ..
Transferred to other Institutions	10.00 ..
Died	14.71 ..
Misconduct	10.00 ..
At own request	29.41 ..
Contrary to medical advice	10.00 ..

Of the 170 cases 31 were too ill to be weighed, either on admission or during their stay. On admission the remaining patients each weighed, on the average, 19.8 lbs. less than his highest known weight. Of the

139 patients weighed 120 or 86.33 per cent. gained 9.11 lbs. or an average of 8.96 ounces per week ; 19 or 13.67 per cent. lost 6.29 lbs. or an average of 6.2 ounces per week.

In estimating the result of treatment as set out in the following tables, there have been excluded all the cases, 21 in number, who stayed for less than 27 days. Of these 5 died.

RESULT OF TREATMENT.

Very much improved	7.38 per cent.
Much improved.. .. .	18.79 ..
Improved	46.31 ..
Stationary	9.40 ..
Worse	4.70 ..
Died	13.42 ..

Altogether 72 per cent. improved materially under treatment.

CAPACITY FOR WORK.

Fit for full work	19.46 per cent.
Fit for light work	25.50 ..
Fit for walking exercise	20.14 ..
Fit only for rest or bed	21.48 ..
Died	13.42 ..

(B) *Soldiers and Sailors only.*

During the period under review, 97 ex-soldiers and sailors were discharged. In respect of stage of disease on admission, result of treatment, and capacity for work on discharge, the figures differ very little from those for all classes of patients taken together, but the comparison tends to be slightly more favourable to the ex-service men.

In the following tables the results of the patients in the different stages of the disease are classed separately for comparison.

	Stage 1.	Stage 2.	Stage 3.	Total.
Average duration of stay (days)	84.84	83.03	101.71	90.18
Average gain in weight (ounces)				
75 cases	153.56	118.50	95.18	128.17
Average loss in weight (ounces)				
8 cases	—	74.00	100.66	94.00

RESULT OF TREATMENT.

	Stage 1.	Stage 2.	Stage 3.	Total.
Very much improved (per cent.)	20.00	8.33	3.45	10.84
Much improved	16.67	16.67	6.90	13.25
Improved	63.33	54.17	44.82	54.22
Stationary	—	12.50	13.80	8.44
Worse	—	8.33	6.90	4.82
Died	—	—	24.13	8.43

CAPACITY FOR WORK.

	Stage 1.	Stage 2.	Stage 3.	Total.
Fit for full work (per cent.)	33.33	8.33	3.45	15.66
Fit for light work	40.00	37.50	13.80	30.12
Fit for walking exercise ..	23.33	29.17	20.70	24.10
Fit only for rest or bed ..	3.34	25.00	37.92	21.69
Died	—	—	24.13	8.43

After Results. To ascertain the degree of permanence of the results attained by treatment in the Sanatorium enquiries from ex-patients brought the following results. Cases other than pulmonary tuberculosis are not included. These were distributed as follows.

	Patients discharged during 1916-17.	Patients discharged during 1918.	Patients discharged during 1919.
Doing full work ..	40	29	18
Doing light or intermittent work	12	7	10
Unable to work ..	17	15	21
Died in Sanatorium	58	20	25
Died since discharge	76	35	15
Again in Sanatorium	11	9	13
Did not reply ..	27	27	19
Lost sight of ..	26	5	4
	267	147	125

C. VENEREAL DISEASES.

The Council have arranged for the skilled diagnosis and treatment of these diseases free in Bradford. At the municipal laboratory pathological examinations are carried out free of cost to the patient or practitioner, substitutes of salvarsan are provided free to qualified

practitioners on application to the Medical Officer of Health; treatment centres have been arranged at the Bradford Royal Infirmary for cases generally, and at 50, Horton Lane, for cases in expectant and nursing mothers, a further treatment centre is being arranged at the Municipal General Hospital, and lavage centres are being arranged at convenient places in the city.

At the Bradford Royal Infirmary new accommodation has been erected for the better outdoor treatment of these diseases and arrangements have been made with the Infirmary for the utilisation of certain beds for indoor treatment. At this institution there are facilities for irrigation of cases of gonorrhœa at any time, and these facilities have largely been taken advantage of. An auxiliary lavage centre has been arranged for males in a lavatory in the centre of the city.

At the Municipal General Hospital similar arrangements are being made. Applications by persons who have been exposed to the risk of infection have been extremely rare.

The Council have appointed a senior and specially trained Venereal Diseases Officer, who is employed whole time on the work and who is assisted by a woman doctor for cases among females. The work has been extending rapidly during the past year, the number of attendances at the Bradford Royal Infirmary alone being nearly five times that in 1918. The work has generally secured the co-operation of all persons interested, including of course the medical profession. A considerable number of practitioners have become qualified to receive free supplies of salvarsan substitutes, there being 24 so qualified, and they received these substitutes for 104 cases, 569 doses being given.

Statement showing services rendered at the Treatment Centre, during the year 1919.

Area.	Number of Attendances at Out-patient Clinic.	Aggregate number of In-patient Days.	No. of doses of Salvarsan Substitutes used in Treatment Centre.	Number of Examinations of Pathological Material made at Treatment Centre.			
				*S	*G	*W	*O
Bradford ..	15001	2836	2587	..	57	108	1
West Riding	3009	1185	882	1	20	35	..
Total ..	18010	4021	3469	1	77	143	1

*S. = For detection of spirochetes.

*G. = For detection of gonococci.

*W. = For Wasserman reaction.

*O. = Other Tests.

Return relating to persons treated at the Treatment Centre during the year 1919.

	Males.	Females.
1. Number of persons dealt with at the Out-patient Clinic for the first time and found to be:—		
Suffering from Syphilis	253	161
Suffering from Soft Chancre (also Syphilis) ..	34	..
Suffering from Gonorrhœa	296	74
Not suffering from Venereal disease	79	40
Diagnosis not made .. .. .	..	2
(9 males and 23 females, double infection) Total ..	662	277
2. Number of persons discharged from the Out-patient Clinic after completion of treatment for:—		
Syphilis .. .. .	..	1*
Soft Chancre	2	..
Gonorrhœa	14	1
* Died		
Total ..	16	2
3. Number of persons who ceased to attend the Out-patient Clinic without completing treatment and who were suffering from:—		
Syphilis	53	80
Soft Chancre	6	1
Gonorrhœa	68	40
(1 male and 8 females, double infection) Total ..	127	121
4. Total attendances of all persons at the Out-patient Clinic who were:—		
Suffering from Syphilis	3200	2048
Suffering from Soft Chancre	274	..
Suffering from Gonorrhœa	7284	1852
Not found to be suffering from Venereal disease	232	99
Diagnosis not made .. .. .	..	12
(6 males and 14 females, double infection) Total ..	10990	4011
5. Aggregate number of "In-patient days" of treatment given to persons suffering from:—		
Syphilis	970	1371
Gonorrhœa	137	250
Soft Chancre	46	..
Not suffering from Venereal disease	30	32
Total ..	1183	1653
6. Number of persons treated with Salvarsan Substitutes	374	258

7. Number of doses of Salvarsan Substitutes given :

Dose.	Novarseno- billion.	Neo-kharsivan.	Galyl.	Number of Doses.
.05 gm.	5	1	..	6
.075 ..	1	..	..	1
.10 ..	33	3	..	36
.15 ..	15	..	..	15
.20 ..	7	2	5	14
.30 ..	497	74	107	678
.35 ..	1	..	..	1
.40 ..	..	..	86	86
.45 ..	679	149	..	828
.50 ..	1	1	..	2
.60 ..	1270	73	..	1343
.675 ..	1	..	..	1
.75 ..	75	1	..	76
.90 ..	..	35	..	35
Total ..	2585	339	198	3122

8. Examinations of Pathological material :—

	Number.
(a) Specimens from persons attending at the Treatment Centre which were examined at this Centre :—	
For detection of Spirochetes .. ..	..
For detection of Gonococci .. ..	..
For Wassermann reaction .. ..	..
Others .. .. .	..
Total ..	..
(b) Specimens from persons attending at the Treatment Centre which were sent for examination to the municipal laboratory :—	
For detection of Spirochetes	24
For detection of Gonococci	464
For Wassermann reaction	751
Others	1
Total ..	1240

It will be seen that the main cause of the fall in the infantile mortality rate in 1919 arose from a lower incidence in zymotic diseases. Congenital causes of death and miscellaneous causes were more numerous. The deaths from congenital causes is high and represents more than two-fifths of the total deaths under 1 year; among illegitimate infants these causes of death account for exactly 50 per cent. of the fatalities. Deaths from congenital causes chiefly occur in the first four weeks of life and the percentage of infantile deaths occurring at these ages amounted last year to 41.6; among illegitimate infants this percentage was practically the same although no less than 12 illegitimate infants lived less than one day.

The number of deaths in the first four weeks of life since 1908 in Bradford is seen in the following table, from which it will be noticed that the increase in the number of deaths at these ages last year has been confined to infants under one week of life.

DEATHS IN THE FIRST FOUR WEEKS OF LIFE.

Year	Week				Total	Proportion of Infantile Deaths
	1	2	3	4		
1908	203	28	60	28	318	37.0
1909	189	26	29	29	273	42.8
1910	154	34	29	32	248	35.8
1911	185	40	31	26	282	36.7
1912	165	29	32	18	244	44.1
1913	187	38	36	18	279	37.6
1914	156	34	41	22	253	36.5
1915	143	33	27	20	223	35.9
1916	153	40	23	23	239	41.2
1917	121	29	10	12	172	33.5
1918	109	24	14	14	161	33.7
1919	137	24	17	11	189	41.6

Taking a four-yearly average for the past 12 years of the deaths recorded as due to congenital causes and those recorded as occurring in the first four weeks of life, it would seem from the following table that the proportion of deaths from antenatal causes shows little change.

DEATHS FROM ANTENATAL CAUSES, 1908-1919.

Deaths.	Percentage of Total Infant Deaths.			
	1919.	Average for four years		
		1908-11.	1912-15.	1916-19.
From congenital causes ..	43.6	42.0	38.7	39.6
In first four weeks of life ..	41.6	38.1	38.5	37.5

In Bradford as compared with the country generally the records of the proportion of deaths in the first four weeks of life appear favourable as seen in the following table, but this is more apparent than real, as the apparent increase in the country since 1916 is due to a large extent to a more rapid fall in the general infantile mortality rate in which Bradford did not fully participate. The truth seems to be that both in Bradford and in the country generally the death rate in the first four weeks of life is so far practically stationary.

PERCENTAGE OF INFANTILE DEATHS IN THE FIRST FOUR WEEKS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford ..	35.8	36.7	44.1	37.6	36.5	35.9	41.2	33.5	33.7	41.6
England and Wales ..	36.5	31.3	40.5	36.4	36.8	34.6	40.4	38.8	37.6	—

The great fall in the infantile mortality rate from diarrhoeal diseases during the past 8 years is seen on the table on page .

Cancer and Malignant Disease. Deaths, 381; Mortality rate per 1,000, 1.32.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Deaths	292	338	356	349	368	328	355	376	356	381
Mortality rate per 1000 ..	1.01	1.17	1.23	1.18	1.27	1.17	1.26	1.41	1.37	1.32

AGE INCIDENCE AT DEATH.

Age Periods ..	1-15	15-25	25-45	45-65	65 and upwards
Deaths ..	1	1	32	187	160

The great majority (91.1 per cent.) of the deaths therefore occurred after 45 years of age.

DEATHS FROM CANCER CLASSIFIED ACCORDING TO THE ORGAN AFFECTED.

	1918.			1919.		
	Males.	Females.	Total.	Males.	Females.	Total.
Cancer of Stomach and Bowels ..	69	67	136	57	68	125
.. Liver	19	28	47	21	28	49
.. Urinary and Generative Organs	13	59	72	9	54	63
.. Breast	—	40	40	—	43	43
.. Head and Face	9	8	17	10	1	11
.. Throat and Tongue ..	22	5	28	27	10	37
.. Other parts of the body	10	7	17	23	30	53
Total	142	214	356	147	234	381

Respiratory Diseases. Deaths, 926 ; Mortality rate per 1,000, 3.21.

There was a decrease in the number of these deaths last year.

DEATHS FROM BRONCHITIS AND PNEUMONIA IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bronchitis	333	322	359	410	381	419	400	398	511	538
Pneumonia	270	309	307	264	317	382	316	277	441	326

AGE INCIDENCE OF DEATHS.

Age Periods	1 year	1-2	2-5	5-15	15-25	25-45	45-65	65 upwards
Bronchitis ..	27	11	4	3	5	25	146	317
Pneumonia ..	43	26	26	26	16	44	79	66

Rheumatic Fever and Organic Heart Disease. Deaths, 424 ; Mortality rate per 1,000, 1.5.

The following record shows the deaths occurring from these diseases during the past seven years.

	1913	1914	1915	1916	1917	1918	1919
Rheumatic Fever	12	22	24	18	8	13	18
Organic Heart Disease ..	552	448	489	397	401	391	406

The ages at death of the total number of fatal cases of rheumatic fever during the past seven years has been as follows :—

AGE INCIDENCE OF DEATHS FROM RHEUMATIC FEVER, 1913-19.

	Under 5 years.	5-15	15-25	25-45	45-65	Over 65 years.
Deaths ..	2	33	17	17	30	16

Deaths from Violence. Deaths, 154 ; Mortality rate per 1,000, 0·53.

RECORD OF PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Deaths	122	136	143	143	164	161	207	141	139	154
Mort'lity rate per 1000 ..	·42	·47	·49	·48	·56	·57	·73	·53	·54	·53

The enquiries by the coroner on causes of death are shown tabulated on page 23.

V.—MATERNITY AND CHILD WELFARE.

(A) INFANT MORTALITY IN 1919.

The infantile mortality rate for the year was 113 per 1,000 births, and although this rate shows a decrease of 10 per 1,000 as compared with the previous year it must still be considered high. The tables which follow show that on the whole since 1891 the fall in the infantile mortality rate has been continuous.

The number of deaths among illegitimate infants was 66, and among legitimate 388; this gives an infantile mortality rate of 206 for illegitimate infants as against a rate of 104 for the legitimate.

The Ward record of Infantile Mortality (pages 106 and 107) shows that the rate was higher in the Exchange, Listerhills, Little Horton,

and East Bowling Wards ; and lower in the Idle, East, Great Horton, and South Wards. Increases in the infantile death rates in the Wards are seen in the North Bierley West Ward, Listerhills, Manningham, Exchange, Eccleshill, East and West Bowling. A marked decrease is seen in the North and South Wards and lesser decreases are seen in the Idle and Great Horton Wards. A study of the table on page 107 will, however, point to the conclusion that too much stress cannot be laid on the figures for any one year in Wards, as the numbers become very small and correspondingly liable to greater variation.

The causes of the deaths of infants in 1919 is given on Table IV. page 146, and they may be classified as follows :—

INFANTILE DEATHS IN PREVIOUS YEARS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Zymotic diseases . .	71	48	23	33	68	46	25	30	57	3
Tuberculous diseases	23	14	13	28	13	8	31	17	10	4
Diarrhœa, &c. . . .	96	180	25	156	88	81	54	30	36	34
Congenital causes . .	277	288	256	295	234	209	231	202	173	198
Pulmonary diseases	82	91	114	96	109	112	99	74	81	70
Convulsions	58	60	69	53	79	54	46	43	28	34
All other causes . .	88	84	53	80	102	112	95	117	92	111
Total	695	765	553	741	693	622	581	513	477	454

Taking the 66 deaths among illegitimate infants last year and adopting a similar classification we find the number occurring in each group was as follows :—Zymotic diseases, 1 ; diarrhœa, etc., 9 ; congenital causes, 33 ; pulmonary diseases, 11 ; convulsions, 5 ; and other causes, 7.

It will be seen that the main cause of the fall in the infantile mortality rate in 1919 arose from a lower incidence in zymotic diseases. Congenital causes of death and miscellaneous causes were more numerous. The deaths from congenital causes is high and represents more than two-fifths of the total deaths under 1 year; among illegitimate infants these causes of death account for exactly 50 per cent. of the fatalities. Deaths from congenital causes chiefly occur in the first four weeks of life and the percentage of infantile deaths occurring at these ages amounted last year to 41·6; among illegitimate infants this percentage was practically the same although no less than 12 illegitimate infants lived less than one day.

The number of deaths in the first four weeks of life since 1908 in Bradford is seen in the following table, from which it will be noticed that the increase in the number of deaths at these ages last year has been confined to infants under one week of life.

DEATHS IN THE FIRST FOUR WEEKS OF LIFE.

Year	Week				Total	Proportion of Infantile Deaths
	1	2	3	4		
1908	203	28	60	28	318	37·0
1909	189	26	29	29	273	42·8
1910	154	34	29	32	248	35·8
1911	185	40	31	26	282	36·7
1912	165	29	32	18	244	44·1
1913	187	38	36	18	279	37·6
1914	156	34	41	22	253	36·5
1915	143	33	27	20	223	35·9
1916	153	40	23	23	239	41·2
1917	121	29	10	12	172	33·5
1918	109	24	14	14	161	33·7
1919	137	24	17	11	189	41·6

Taking a four-yearly average for the past 12 years of the deaths recorded as due to congenital causes and those recorded as occurring in the first four weeks of life, it would seem from the following table that the proportion of deaths from antenatal causes shows little change.

DEATHS FROM ANTENATAL CAUSES, 1908-1919.

Deaths.	Percentage of Total Infant Deaths.			
	1919.	Average for four years		
		1908-11.	1912-15.	1916-19.
From congenital causes ..	43.6	42.0	38.7	39.6
In first four weeks of life ..	41.6	38.1	38.5	37.5

In Bradford as compared with the country generally the records of the proportion of deaths in the first four weeks of life appear favourable as seen in the following table, but this is more apparent than real, as the apparent increase in the country since 1916 is due to a large extent to a more rapid fall in the general infantile mortality rate in which Bradford did not fully participate. The truth seems to be that both in Bradford and in the country generally the death rate in the first four weeks of life is so far practically stationary.

PERCENTAGE OF INFANTILE DEATHS IN THE FIRST FOUR WEEKS.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Bradford ..	35.8	36.7	44.1	37.6	36.5	35.9	41.2	33.5	33.7	41.6
England and Wales ..	36.5	31.3	40.5	36.4	36.8	34.6	40.4	38.8	37.6	—

The great fall in the infantile mortality rate from diarrhoeal diseases during the past 8 years is seen on the table on page .

INFANT MORTALITY IN BRADFORD AND ENGLAND AND WALES
FOR EACH YEAR, AND IN GROUPS OF FIVE YEARS SINCE 1871.

BRADFORD.		ENGLAND AND WALES.		BRADFORD.		ENGLAND AND WALES.	
	Average		Average		Average ^c		Average
1871	220	158		1896	143	148	
1872	220	150		1897	179	156	
1873	205	149	153	1898	184	160	156
1874	189	151		1899	181	163	
1875	202	158		1900	140	154	
1876	176	146		1901	168	151	
1877	157	136		1902	139	133	
1878	178	152	145	1903	148	132	138
1879	152	135		1904	167	145	
1880	176	153		1905	144	128	
1881	154	130		1906	152	132	
1882	174	141		1907	124	118	
1883	147	137	139	1908	143	120	117
1884	181	147		1909	116	109	
1885	144	138		1910	127	106	
1886	168	149		1911	140	130	
1887	179	145		1912	99	95	
1888	153	136	145	1913	128	109	110
1889	181	144		1914	122	105	
1890	169	151		1915	123	110	
1891	181	149		1916	118	91	
1892	155	148		1917	132	97	
1893	198	159	151	1918	123	97	
1894	144	137		1919	113	89	
1895	203	161					

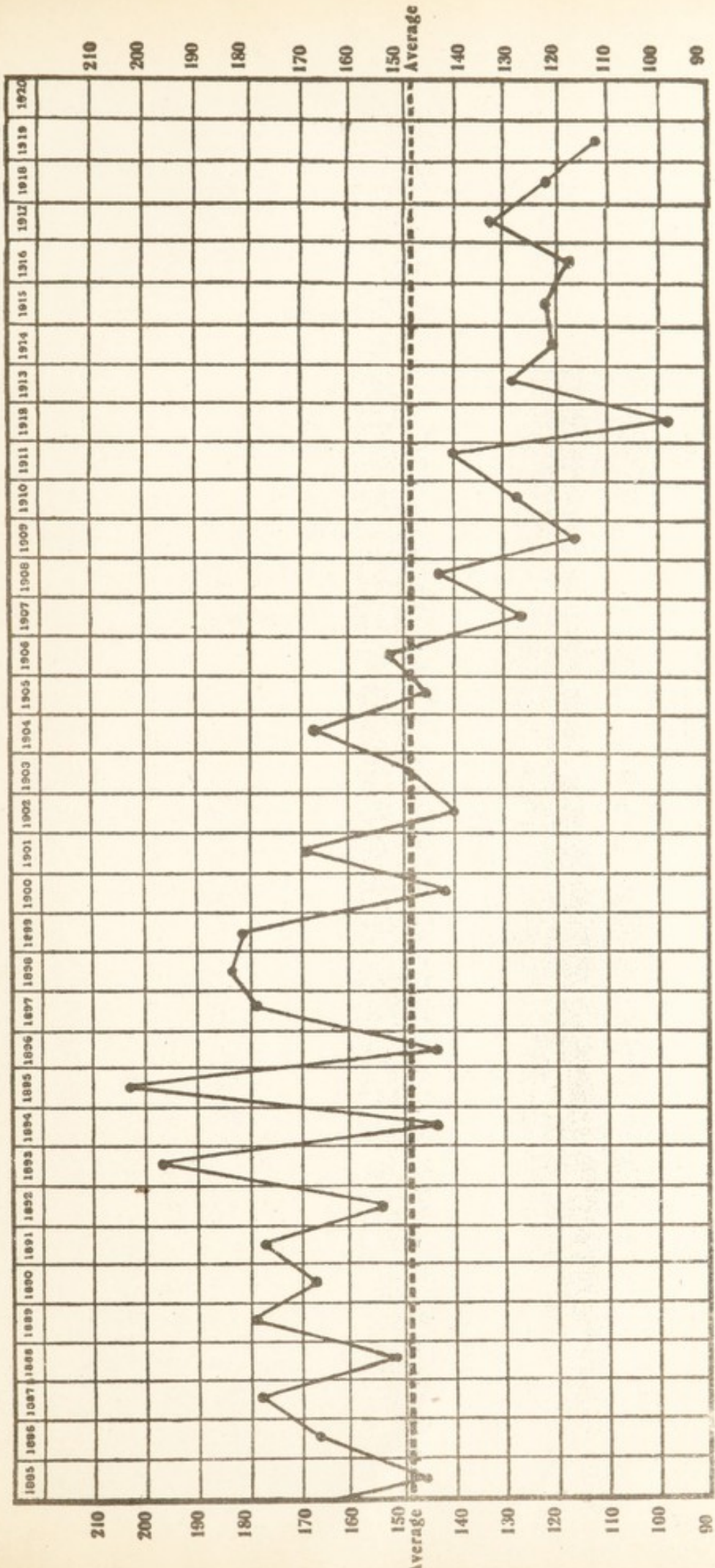
INFANT MORTALITY 1893—1919.

Year	Deaths under One Year of Age per 1000 Births.		
	Total.	Diarrhoeal Diseases.	Total less Diarrhoeal Diseases.
1893	198	12	186
1894	144	10	134
1895	203	52	151
1896	142	18	124
1897	179	23	156
1898	184	19	165
1899	181	22	159
1900	141	16	125
1901	168	35	133
1902	139	8	131
1903	148	19	129
1904	167	29	138
1905	144	21	123
1906	152	34	118
1907	124	11	113
1908	143	30	113
1909	116	6	110
1910	127	20	107
1911	140	32	108
1912	99	4	95
1913	128	27	101
1914	122	15	107
1915	123	16	107
1916	118	11	107
1917	132	8	124
1918	123	9	114
1919	113	9	104

INFANTILE MORTALITY IN CERTAIN GREAT TOWNS, 1907-1919

Town.	Deaths per 1,000 Births.			
	1919.	Average for four years.		
		1907-10.	1911-14.	1915-18.
Birmingham	88	139	129	103
Bradford	113	128	122	124
Bristol	82	105	110	100
Halifax	98	98	102	105
Huddersfield	95	101	111	95
Hull	110	131	126	120
Leeds	112	131	129	128
Leicester	96	128	120	110
Liverpool	107	142	137	121
London	85	105	107	103
Manchester	95	141	132	112
Newcastle	119	128	123	118
Nottingham	104	147	138	123
Portsmouth	71	105	98	78
Salford	101	142	134	119
Sheffield	97	133	126	118
Stoke-on-Trent ..	110	162	161	125
West Ham	84	141	114	106

INFANT MORTALITY PER 1000 BIRTHS, 1885—1919.



Average for 35 years—149.

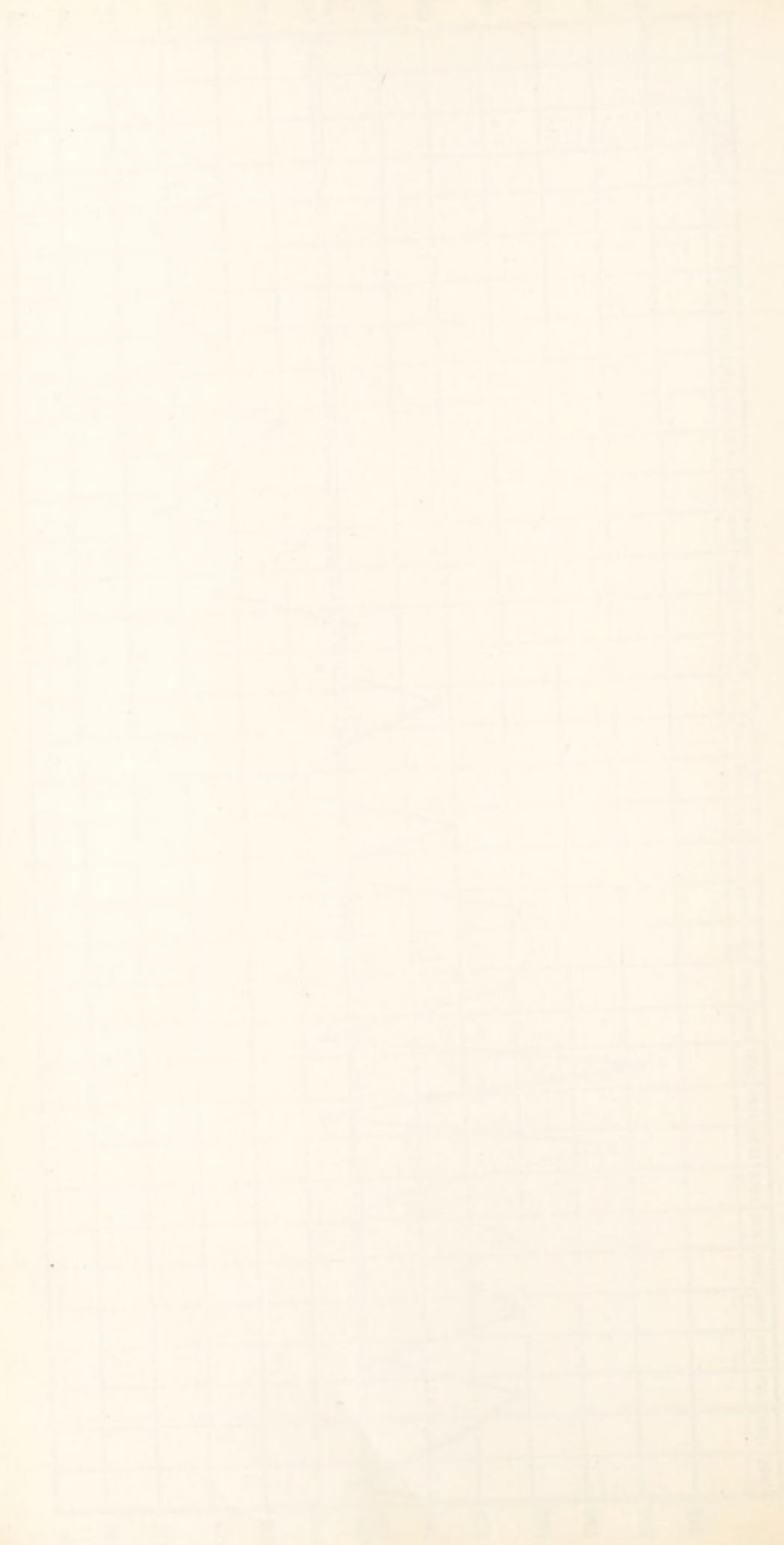
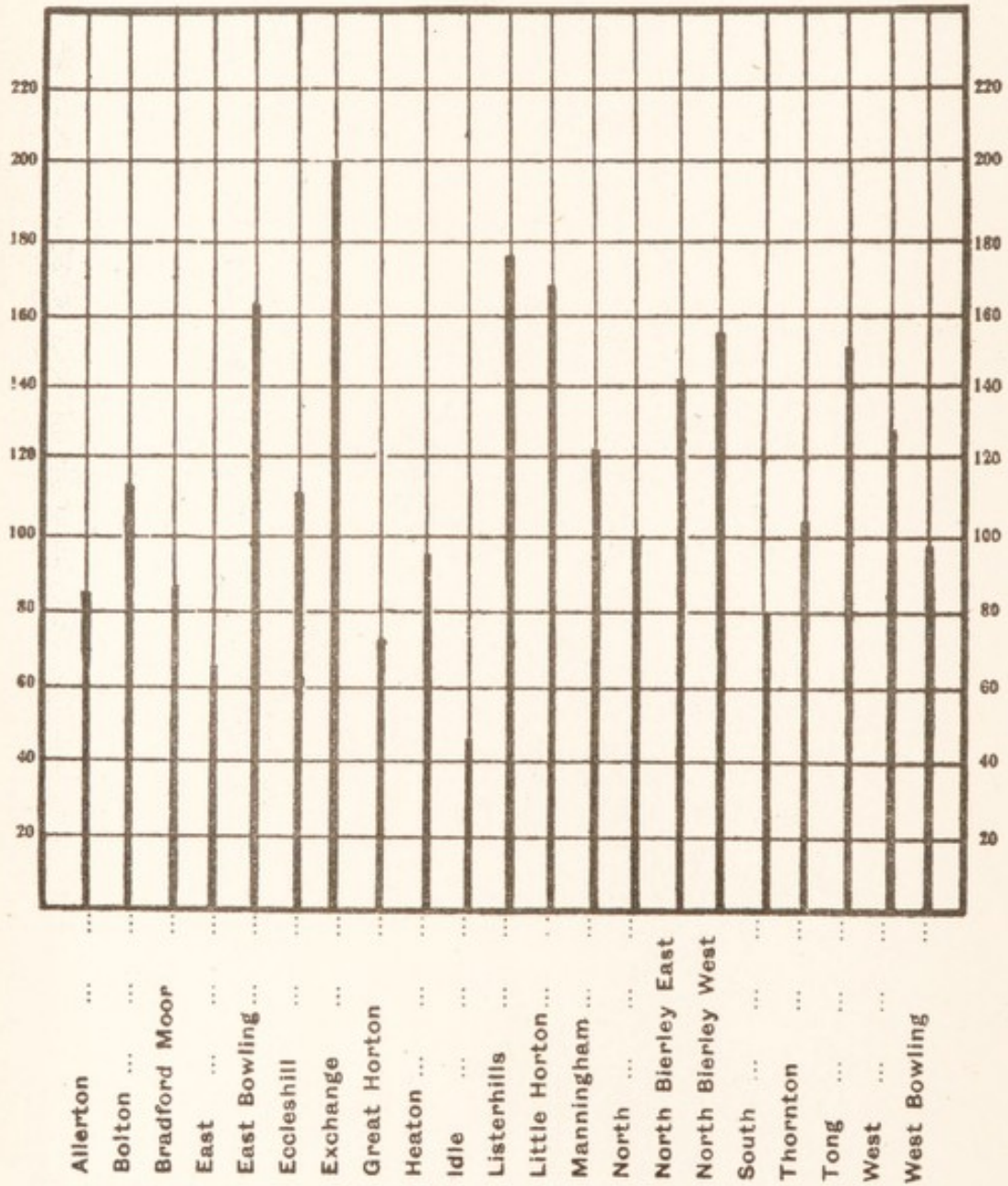


DIAGRAM SHOWING COMPARATIVELY THE INFANT MORTALITY PER
1000 BIRTHS IN THE MUNICIPAL WARDS, 1919.



INFANT MORTALITY RATE PER 1,000 BIRTHS, IN WARDS, FOR THE
YEARS 1910 TO 1919.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Allerton	64	98	76	95	65	73	70	85	120	85
Bolton	63	72	70	81	96	95	106	86	121	115
Bradford Moor ..	131	152	110	149	121	158	159	134	118	87
East	92	156	99	112	126	114	116	128	75	68
East Bowling ..	144	142	117	107	143	112	157	149	144	163
Eccleshill	109	157	84	92	89	57	99	96	74	112
Exchange	230	293	185	196	149	333	271	214	162	200
Great Horton ..	131	51	76	90	118	121	74	86	113	71
Heaton	152	94	69	87	82	67	108	45	104	96
Idle	171	91	67	73	50	73	106	143	104	45
Listerhills	147	195	129	189	150	162	88	121	111	178
Little Horton ..	114	111	114	103	110	137	116	172	152	168
Manningham	141	129	70	159	97	112	115	151	99	122
North	166	230	126	194	192	160	95	195	214	100
North Bierley (East)	108	161	68	129	119	81	124	107	158	141
North Bierley (West)	75	106	144	82	62	67	72	165	76	157
South	131	194	119	185	176	204	176	221	195	81
Thornton	122	204	55	116	74	122	76	73	132	104
Tong	114	135	68	94	155	56	147	61	165	152
West	161	210	178	139	171	172	159	214	147	128
West Bowling ..	99	103	73	137	99	96	86	105	64	97
City	127	140	99	128	122	123	118	132	123	113

(B) MATERNITY.

Midwives Acts, 1902 and 1918. The number of midwives practising in Bradford on the 31st December, 1919, was 45, of whom 36 held the Certificate of the Central Midwives Board by examination, or its equivalent, while 9 were on the Roll as *bona fide* practitioners before the passing of the Midwives Act, 1902. Inspection of midwives is carried out by an inspector who paid 736 visits to the midwives during the year; of these 351 were routine inspections, while 385 were special inspections for some particular purpose. The midwives inspector also paid 138 visits to supervise the care of the infants' eyes in cases of ophthalmia neonatorum.

In Bradford the midwives attended in 1919, 2,926 or 70·2 per cent. of the registered births. The proportion of cases attended by midwives has been steadily increasing in the city, in 1913 it was just under 50 per cent. The number of cases attended by each midwife has varied from none to 247 as will be seen in the following table:—

NUMBER OF CASES ATTENDED BY MIDWIVES, 1919.

Number of Cases	Trained Midwives		Untrained Midwives	
	No.	Total Cases	No.	Total Cases
Over 150	5	1140	1	163
130—150	1	139	—	—
110—130	4	480	—	—
90—110	1	91	—	—
70—90	2	162	—	—
50—70	4	231	—	—
30—50	5	196	1	45
10—30	2	35	2	38
Under 10	—	—	1	8
None	1	—	1	—
Total	25	2474	6	254

The number of cases now attended by untrained midwives is very small indeed, amounting only to about 9 per cent. of the total attended by midwives.

The number of notifications of sending for medical help was 547, or 18.6 per cent. of their cases. It will be noticed that the number and proportion of medical aid notices continue to increase; this is to be expected with the passing of an increasingly large amount of this work into the hands of the midwives. In 389 cases medical aid was called in on account of the mother, and in 158 cases on account of the child.

MEDICAL AID NOTIFICATIONS.

Mother.					
Contracted Pelvis .. .. .	..	..	..	..	3
Adherent Placenta .. .. .	..	..	..	..	16
P.P. Hæmorrhage .. .. .	..	..	..	..	16
A.P. Hæmorrhage .. .. .	..	..	..	..	14
Instrumental Delivery .. .. .	..	..	..	..	108
Malpresentation .. .. .	..	..	..	..	26
Ruptured Perinæum .. .. .	..	..	..	..	121
High Temperature .. .. .	..	..	..	..	14
Heart Trouble .. .. .	..	..	..	..	5
Retained Membrane .. .. .	..	..	..	..	4
Skin Eruption .. .. .	..	..	..	..	1
Placenta Prævia .. .. .	..	..	..	..	4
Dropsy .. .. .	..	..	..	..	1
Septic Condition .. .. .	..	..	..	..	2
Abortion .. .. .	..	..	..	..	13
Albumunuria .. .. .	..	..	..	..	1
Chest Trouble .. .. .	..	..	..	..	9
Debility after Labour .. .. .	..	..	..	..	9
Debility during Pregnancy.. .. .	..	..	..	..	3
Purulent Discharge during Pregnancy .. .. .	..	..	..	..	4
Other Causes .. .. .	..	..	..	..	15
Total .. .. .	..	..	..	..	389

	Child.	
Debility	83	
Malformations	16	
Convulsions	6	
Skin Disease	3	
Inflammation in Eyes	46	
Pemphigus neonatorum	3	
Inflammation round Navel.. .. .	1	
Total	158	

Notice was sent to the Local Supervising Authority of the deaths of 5 infants under the care of midwives before the arrival of a medical practitioner. The midwives reported 49 cases of still-births, or about 1·7 per cent. of their cases.

The notices received from the trained and untrained midwives may be summarised as follows :—

Midwives..	Still Births.	Medical Aid.	Puerperal Fever.	Death of Infants before Doctor's arrival.	Ophthalmia Neonatorum.
Trained ..	46	511	4	4	23
Untrained ..	3	36	—	1	7
Total	49	547	4	5	30

A course of lectures for the purpose of preparing pupil midwives for the Examination of the Central Midwives' Board was given under arrangements made with the Education Committee by a recognised teacher and was attended by 21 pupils.

Under the Midwives Act, 1918, the total number of claims for Midwifery fees sent in by medical practitioners during 1919 was 132.

The local supervising authority determined to recover in full 60 of these claims and in part 13, leaving 59 paid in full by the authority.

The local authority were directly employing at the end of 1919, 13 midwives located in various parts of the city; this was an addition of 3 on the staff of municipal midwives during the year. The work done by the municipal midwives is now very large; they attended during 1919 no less than 56.2 per cent. of the total cases attended by midwives in the city as against 41.2 per cent. in 1918. The average number of cases attended in 1919 by each municipal midwife was 126.6, a high average, especially considering that 3 of the midwives were not engaged for a full year; during 1918 the average number attended by each municipal midwife was 108.9. The following statement shows the work done by the municipal midwives in the two years 1918 and 1919 as compared with the total work by midwives in the city.

WORK OF MUNICIPAL MIDWIVES.

	1918.		1919.	
	All midwives	Municipal midwives	All midwives	Municipal midwives
Births attended	2602	1089	2926	1645
Medical Aid Notices ..	432	207	547	360
Still Births	57	34	49	42
Death of Mother	—	—	1	—
High Temperature ..	2	1	4	4
Ophthalmia Neonatorum ..	46	12	31	14
Total Visits to Patients ..	—	12855	—	21246
Antenatal Visits	—	1611	—	4482

Antenatal Work. When an expectant mother is attended by a midwife other than a municipal midwife home supervision of the case is carried out by the health visitors, who paid during 1919, 2,863 visits to 1,935 expectant mothers. A very large proportion therefore of

mothers are coming under observation before the birth of the child, no less than 7,345 visits being paid by the municipal midwives and the health visitors during 1919 as against 2,321 in 1918. During the year 1919 antenatal centres were in operation at the outdoor department of the municipal maternity hospital and at Wakefield Road, while for expectant mothers suffering from venereal disease the clinic at 50, Horton Lane, as well as the clinic at the Bradford Royal Infirmary, was available. A considerable increase in the number of these centres was authorised during the current year and the appointment of a woman antenatal medical officer made. The number of mothers who attended the outdoor department of the maternity hospital in 1919 was 524, and the total number attending antenatal centres was 613.

The number of still births notified in 1919 was 180; the number notified each year since 1912 has been as follows: 1912, 230; 1913, 270; 1914, 237; 1915, 235; 1916, 208; 1917, 200; 1918, 169; and in 1919, 180. Special enquiries were made into those still births notified by the midwives, with the following results:—

STILL BIRTHS, 1919.

DURATION OF INTRA-UTERINE LIFE.

Time.	Cases.
Under 7 months	1
7 months	13
8 months	8
Full time	27

CONDITION OF FÆTUS.

Number macerated	29
Number not macerated ..	20

PRESENTATION.

Vertex	41	Footling	4
Breech	3	Funis	1

It will therefore be noticed that in more than 50 per cent. of the cases investigated the still births occurred at full time, while in about 60 per cent. of the cases the foetus had died some time before labour set in.

The apparent causes of the still birth may be set out as follows :—

Cause.	Number of Cases.
Malpresentation	3
Syphilis	14
Maternal Shock (Fright, 1 ; Accident, 4)	5
General Debility of Mother	18
Asphyxia Pallida	4
Anencephalic Monsters	1
Hydramnios	1
Unknown	3
	—
Total	49

The duration of labour in 5 of these cases of still birth was under 1 hour ; in 8 between 1 and 4 hours ; in 22 between 4 and 8 hours ; in 5 between 8 and 12 hours ; in 5 between 12 and 18 hours ; and in 4 over 24 hours.

It would therefore seem that the presentation was associated with the cause of the still birth in 6 per cent. of the cases ; some maternal condition in about 46 per cent. of the cases ; and syphilis in about 28 per cent. of the still births.

In 1 case of still birth the mother was 18 years of age ; in 23 cases the mothers were between 20 and 30 years ; in 9 between 31 and 35 years ; in 7 between 36 and 40 years ; and in 9 over 40 years of age.

The pregnancy at which the still birth occurred was in 14 the first ; in 6 the second ; in 9 the third ; in 4 the fourth ; in 3 the fifth ; in 2 the sixth ; in 4 the eighth ; in 1 the ninth ; in 3 the tenth ; in 2 the twelfth ; and in 1 the fifteenth.

In 11 cases the women had previously borne still born children, in 9 of which the mother had one previous still born child, in 1 two, and in 1 more than two previous still born children.

Accommodation for Maternity Cases. Apart from the accommodation provided by the poor law unions and private maternity homes, there was in Bradford at the end of 1919 about 26 beds available for maternity cases ; twenty of the beds were in the municipal maternity hospital, and about six were provided by a voluntary agency.

The *Municipal Maternity Hospital* takes in complicated maternity cases and ordinary maternity cases where home difficulties arise in arranging for the confinement. As far as possible all women desiring to enter the Hospital attend previously at the outdoor department, but urgent cases are admitted at any time. The number of cases admitted during 1919 was 294, and the duration of their stay varied from 10 days to five weeks, the average being just over 18 days. The number of infants born alive was 278, and the number still born 22. The number of live infants who died within 10 days of birth was 4. The total number of premature deliveries was 32. Two maternal deaths took place in the hospital during the year. The number of cases in which the temperature rose above 100.4°F. for 24 hours with a rise in the pulse rate was 19. The number of cases of ophthalmia neonatorum was 3, and there were no other even slight inflammations of the eyes. The number of infants not entirely breast fed while in the hospital was only 10. Considering the large proportion of difficult cases admitted these results are good.

A voluntary society maintains maternity accommodation for unmarried mothers at St. Monica's Home in Belle Vue, Bradford. This rescue society does a large amount of good work among unmarried girls and makes provision for their confinement. The number of maternity cases dealt with at St. Monica's in 1919 was 80, the number of live children born there was 79, and the number of still births 3.

The number of cases of puerperal fever notified in 1919 was 16, all of which were visited and supervised by the Health Visitors; two were removed to hospital. The total number of cases of ophthalmia neonatorum notified was 90. All these cases were visited and supervised and 40 of them were removed to hospital. Among the cases notified the vision in four cases was defective after treatment as follows:—

In one case one eye had to be enucleated, the vision in the other being good; in one case one eye was enucleated and iridectomy performed on the other; in one case iridectomy was performed on both eyes with good results, and in a fourth case iridectomy had to be performed on one eye with a fair result, the other being good.

(C) INFANCY.

During the year 1919 the number of births registered in Bradford was 4,023, while the number notified under the Notification of Births Act, 1907, was 4,293.

RECORD OF PREVIOUS YEARS.

	1914	1915	1916	1917	1918	1919
Births registered	5709	5062	4913	3879	3871	4023
Births notified	5667	5124	5070	3988	3802	4293
*Notifications to 100 registrations	99·2	101·2	103·2	102·8	98·2	106·7

* The comparisons here are not quite accurate as the births notified include still births which are not registered.

TIME OF RECEIPT OF NOTIFICATIONS OF BIRTH IN 1919.

Persons notifying	Receipt of Notification.					1-2 months	2-3 months	Total	Per cent. received late
	Within 2 days	3-7 days	1-2 weeks	2-3 weeks	3-4 weeks				
Doctor.. ..	570	358	24	11	1	6	—	970	41·1
Midwife ..	1959	647	16	10	9	3	—	2634	25·6
Father ..	127	56	—	8	5	—	—	196	35·3
Doctor and Midwife ..	107	45	—	—	—	—	—	152	29·6
Father and Doctor ..	42	17	2	—	—	—	—	61	31·1
Father and Midwife ..	2	—	—	—	—	—	—	2	—
Institutions ..	240	25	1	2	—	—	—	268	10·4
Total ..	3047	1148	43	31	15	9	—	4293	26·4

Following the receipt of the notification a large proportion of the births are visited. Speaking generally all cases notified by midwives are visited as soon as possible after the birth as well as those cases with doctors in attendance where the home circumstances are known to be poor. The number of infants notified in 1919 visited was 4,122.

BIRTHS VISITED IN 1919.

Person in attendance	Times between Birth and Visit					Total
	1 week	2 weeks	3 weeks	4 weeks	Over 4 weeks	
Doctor ..	263	337	343	139	261	1343
Midwife ..	2136	333	147	47	80	2734
Institution .	1	2	8	10	24	45

Of the 4,122 births visited it was considered that 94 required visitation once only during the first year while 4,028 were selected for frequent revisitation during their first year of life. The total number of visits paid in 1919 to infants was 32,801.

FEEDING OF INFANTS UNDER VISITATION COMPLETING FIRST YEAR.

	Hand fed from birth	Mixed feeding from birth	Wholly breast fed				
			Under 1 month	Under 3 months	Under 6 months	Under 9 months	9 months and over
Infants ..	191	54	218	388	367	320	1314
Percentage	6.7	1.9	7.6	13.6	12.9	11.2	46.1

WORK OF MOTHERS IN 1919.

	Outside the home			Inside the Home
	Factories	Other Work	Total	
Within six months before birth ..	463	131	594	2232
Within six months after birth ..	159	41	200	2627

This table as compared with the previous year shows a smaller proportionate number of mothers employed outside the home before birth and a smaller proportionate number so employed after birth.

Of the 594 mothers working within six months before confinement 283 were employed within three months before the birth, and of the 200 mothers working within six months after confinement 110 returned to work within three months after the birth.

The number of cases of epidemic diarrhoea coming under notice and visited by the Health visitors last year was 86.

Infant Clinics. The number of infants registered for the first time at the Infant Clinics in 1919 was 1,810. The following table shows the growth of the work since its inception.

INFANT CLINICS.

Year	New cases	Percentage of births registered	Total attendances during 1919	Average weekly attendances	Average daily attendances
1914	2,488	43·6	31,193	600	120
1915	1,987	39·3	28,192	540	108
1916	1,998	40·6	23,490	452	90
1917	1,721	44·4	19,194	369	74
1918	1,606	41·5	17,068	328	65
1919	1,810	45·0	19,495	375	75

It will be seen that the number of infants brought to infant clinics has increased considerably, more than 45 per cent. of the infants born having attended. This proportion is the highest so far recorded in Bradford. The increased number is largely due to the opening in 1918 of district infant clinics at which it is much more easy for many mothers to attend with their infants. There were in 1919 six of these district infant clinics in operation, mostly for one afternoon a week; four more centres are being opened during the current year. The number of attendances at the Central Clinic in 1919 was 12,927, and at the District Clinics 6,568. The total number of infants in attendance at all clinics was 2,374, of whom 157 were illegitimate, 116 of these illegitimate infants attending for the first time during the year. The difficulty of

persuading those who take care of illegitimate infants to bring them to the infant clinics is considerable, although these infants most of all require the advice and supervision given there; only 36 per cent. of illegitimate infants were brought as against 45 per cent. for infants generally. The ages at which infants were brought to the infant clinics is seen in the following table.

AGES ON REGISTRATION.

	Age of Infant.													
	Weeks				Months									
	-1	-2	-3	-4	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11
Number of Infants..	6	15	98	142	701	315	158	101	62	49	53	30	41	33

The earlier age at which infants were brought to the clinic is seen by the fact that more than 53 per cent. of the infants were under 2 months old when first brought in 1919 as against 45 per cent. in 1918.

The proportion of infants breast fed when first brought to the clinic was found in 1919, to be 47.4 per cent. as against 49.8, 48.5, and 43.6 per cent. in the years 1918, 1917, and 1916 respectively.

The *Infants' Hospital* is situated at the Central Clinic in Morley Street and can accommodate about 14 infants. The number of cases admitted in 1919 was 211, of which 32 were readmissions. This number is the largest that has been admitted in any one year since its opening, and represents the maximum use to which the present accommodation can be put. The need for further accommodation for this work is urgent, as only a proportion of infants requiring such accommodation is provided for and many cases require prolonged indoor treatment to restore them to health.

(D) EARLY CHILDHOOD.

The number of cases of Measles and German Measles coming under notice in children under 5 years last year was 1,642. These were all visited and supervised by the Health Visitors and 14 were removed to hospital. The number of cases of Whooping Cough under five years coming under notice was 125, these were similarly visited and 2 were removed to hospital. One case of poliomyelitis under five years came under notice.

1915 a Centre was opened in Edmund Street to continue the supervision of children from the period of infancy until they arrived at school age. The number of new cases registered during the year was 807 and the total attendances was 8,306. During 1919 a branch centre for young children was opened at Wakefield Road.

During the year 1,775 children (896 boys and 879 girls) were examined and when necessary treated; these children were found to present 2,553 defects, or an average of 1.4 defects per child. The following table shows the main classes of these defects as they were noted in each sex.

DISEASES AND DEFECTS IN YOUNG CHILDREN.

Diseases	Number affected			Percentage affected		
	Males	Females	Total	Males	Females	Total
Alimentary	332	306	638	37.1	34.8	35.9
Respiratory	362	302	664	40.4	34.4	37.4
Circulatory	11	16	27	1.2	1.8	1.5
Nervous	7	12	19	.8	1.4	1.1
Infectious	60	88	148	6.7	10.0	8.4
Tuberculosis	12	13	25	1.3	1.5	1.4
Rickets	29	21	50	3.2	2.4	2.8
Syphilis	7	8	15	.8	.9	.9
Throat, Nose, Ear ..	152	130	282	17.0	14.8	15.9
Eye	69	33	102	7.7	3.8	5.7
Debility	10	23	33	1.1	2.6	1.9
Skin—Contagious ..	106	97	203	11.8	11.0	11.4
Skin—Non-contagious ..	54	73	127	6.0	8.3	7.2
Accidents	5	12	17	.6	1.4	1.0
All other conditions ..	129	74	203	14.4	8.4	11.4
Total Defects ..	1345	1208	2553	150	137	144

The very large amount of alimentary, respiratory, and skin diseases will be noted in the table, and the low proportion of tuberculosis and syphilis.

(E) VOLUNTARY WORK IN CONNECTION WITH MATERNITY AND
CHILD WELFARE.

In addition to the maternity work undertaken at St. Monica's Home already alluded to, a considerable amount of voluntary work is done by various organisations in Bradford. The Children's Hospital provides a large amount of accommodation for sick children, the Charity Organisation Society and the Cinderella Club organise country holidays for children, and the Craig Convalescent Home, Morecambe, receives yearly a large number of children from the city for short periods. For maternity and child welfare voluntary work there came in to being during the war, the Bradford Maternity Care Committee. This Committee has greatly extended its work since its inception and it has all along worked in close association with the activities of the local authority. The following short report is furnished of its work.

At first the function of the Committee was simply to provide premises and workers to distribute the dinners supplied by the Health Committee for necessitous nursing and expectant mothers. In the beginning of 1918 it was decided to considerably extend the scope of the Committee's work. For this purpose premises were taken in Wakefield Road and a Club and School for mothers established and a trained worker was appointed superintendent.

The aim of the Committee was to provide systematic teaching in mothercraft, household management, and hygiene. Arrangements were made with the Education Committee to provide qualified teachers in these subjects and classes for dressmaking, sewing, knitting, and cookery were formed. About twelve months later arrangements were made with the Health Committee and the Medical Officer of Health for the establishment of a Pre-School Clinic, and later Infant and Antenatal Clinics were opened.

It is the desire and intention of the Committee to ultimately open up similar classes wherever branch clinics are established.

Two classes for sewing, dressmaking, and knitting, and one

for cookery, are held weekly at the Club premises in Wakefield Road, in co-operation with a Pre-School and Antenatal Clinic.

Towards the end of 1919 a class for needlework was opened at Otley Road in conjunction with a Branch Infant Clinic.

In addition to the class work a considerable number of home visits were made in the district by the Superintendent.

Total Visits in 1919	..	..	..	..	592
First Visits	..	..	..	..	37
Visits to Expectant Mothers	..	..	..	..	25
Visits to Club Mothers and Children	..	..	..	..	386

Holiday Home. The Committee recently arranged to lease two Cottages at Addingham for use as a Holiday Home by members of the Clubs and their Children.

ATTENDANCES AT THE CLASSES FOR 1919.

	No. on Register.	Total Attendances.	Average Attendances.
<i>Sewing—</i>			
Wakefield Road—			
Tuesday ..	22	329	7·8
Wednesday ..	24	429	10·2
Otley Road—			
Wednesday ..	18	60	12
<i>Cookery—</i>			
Wakefield Road—			
Wednesday ..	18	329	8·2

(F) EMPLOYMENT OF CHILDREN ACT, 1903.

The number of offences discovered against the Bye-laws was 110, as compared with 51 in the previous year, 124 in the year 1917, 207 in the year 1916, 486 in the year 1915, 228 in the year 1914, 336 in the year 1913, 178 in the year 1912, 315 in the year 1911, 439 in the year 1910, 277 in the year 1909, 375 in the year 1908, and 724 in the year 1907. In two cases where the offence was repeated after warnings had been given, the employers were prosecuted, and in the remaining cases the employers were served with warning notices and supplied with printed copies of the Bye-laws.

The following is a summary of the offences committed:—

Children employed after 8 p.m. on weekdays	8
„ before and after school hours for more than 20 hours in a week	4
„ under 11 years of age	8
„ the whole of the day on Saturday	38
„ both morning and evening ..	12
„ on Sundays	2
„ during school meal hours	11
„ after 8 a.m. and before 5 p.m. on weekdays	21
„ for more than 30 hours in a week ..	1
Other offences	4
	—
Total	109

Children's Performances. One hundred and twenty-nine children were licensed by the Magistrates to take part in public entertainment at the various theatres and other places of amusement. Visits were made in each case to see that the conditions of the licence were carried out, and that the children were suitably cared for and educated. All the conditions were found to be satisfactory. Visits were also made to places of entertainment at times when no licenses were in operation, and in one instance a child was found to be taking part without having been licensed by the Magistrates. The manager of the place of entertainment was warned.

For offences against the Employment of Children Act Bye-laws two persons were proceeded against, and fines amounting to £2 15s. were imposed together with 19s. costs.

VI.—BACTERIOLOGICAL AND PATHOLOGICAL WORK.

The Local Authority maintains a very well equipped laboratory for bacteriological and allied work which in recent years has been increasing greatly both in its scope and amount. During 1919 a full time and specially qualified pathologist was appointed by the Local Authority to consolidate and supervise the work.

The number of examinations carried out in 1919 was 7210, all of which were done in the Laboratory, except 51, which were carried out at Leeds University. These numbers are of course exclusive of very many of the simpler bacteriological examinations done at hospitals and clinics. The conditions for which these examinations were carried out were as follows:—55 specimens, Enteric Fever (Widal's Reaction); 1,862 Diphtheria; 914 Human Tuberculosis (sputum); 195 Bovine Tuberculosis (sputum); 657 Bovine Tuberculosis (milk); 10 Tuberculosis (urine); 80 Cerebrospinal Fever (cerebrospinal fluid); 32 Malaria (blood); 4 Dysentery (excreta); 172 Anthrax (wool, hair, shaving brushes); 2245 Syphilis (Wassermann); 44 Syphilis (spirochaetes); 907 Gonorrhoea; 33 other specimens.

Arrangements were completed during the year so that all bacteriological work could be carried out in Bradford, and during the current year a systematic milk and food bacteriological investigation was commenced.

VII.—HOSPITAL ACCOMMODATION FOR
INFECTIOUS DISEASES ETC.

(A) INFECTIOUS DISEASES HOSPITALS.

The chief hospital for infectious diseases is the City Hospital, Leeds Road, wholly maintained by the local authority, where 210 patients could be accommodated. In addition to this the authority has a large interest in three joint hospitals, Calverley, North Bierley, and Thornton, this interest amounting in all to about 60 beds, so that for the ordinary infectious diseases there are about 270 beds available in Bradford. For smallpox the Odsal Hospital was erected in 1916 and provides accommodation for 50 patients; this hospital is used temporarily for tuberculosis during the freedom of the city from smallpox.

The following Table gives a summary of the cases admitted to the Leeds Road Hospital and the joint hospitals; no cases of smallpox occurred during the year:—

	Leeds Road	North Bierley	Calv'ley	Th'rnton	Total
Scarlet Fever	18	8	147	—	173
Diphtheria	196	97	—	—	293
Enteric Fever	15	3	—	3	21
Cerebro Spinal Fever	10	—	—	6	16
Erysipelas	7	—	—	—	7
Puerperal Fever	2	—	—	—	2
Measles	19	—	—	—	19
Other Diseases	27	—	—	3	30
Totals	294	108	147	12	561

Leeds Road Hospital was in operation for part of the year only, as it was not vacated by the military authorities until April, and con-

siderable renovation had to be carried out. The medical staff at Leeds Road consists of a resident medical superintendent and an assistant medical officer. The medical staff at other hospitals consists of visiting part time medical officers.

City Hospital, Leeds Road.—Dr. Kitchin, the Medical Superintendent, has prepared the following Tables showing the work done at the hospital.

GENERAL ABSTRACT,

Remaining in Hospital, 31st December, 1918	..	..	—
Admitted during the year 1919	..	..	294
			<hr/>
TOTAL	..	..	294
			<hr/>
Discharged, (relieved or cured)	..	..	196
Died	..	..	22
Remaining in Hospital, 31st December, 1919	..	..	76
			<hr/>
TOTAL	..	..	294
			<hr/>

SHOWING NUMBER OF CASES ADMITTED DURING EACH MONTH.

1919.	Scarlet Fever.			Enteric Fever.			Diphtheria.			Other Diseases.			Total Admissions.		
	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total
April	—	—	—	—	—	—	2	1	3	2	1	3	4	2	6
May ..	0	1	1	—	—	—	3	6	9	1	3	4	4	10	14
June ..	0	1	1	—	—	—	7	5	12	3	6	9	10	12	22
July ..	—	—	—	—	—	—	11	12	23	4	4	8	15	16	31
Aug. ..	—	—	—	2	—	2	7	6	13	3	4	7	12	10	22
Sept.	—	—	—	3	5	8	6	12	18	2	2	4	11	19	30
Oct. ..	—	—	—	—	2	2	14	14	28	5	3	8	19	19	38
Nov. ..	—	—	—	—	2	2	13	18	31	6	7	13	19	27	46
Dec. ..	6	10	16	—	1	1	21	38	59	4	5	9	31	54	85
Totals	6	12	18	5	10	15	84	112	196	30	35	65	125	169	294

The hospital was occupied by military patients only during the first three months of the year.

DIPHTHERIA.

AGE.	MALES.		Females.		TOTALS.		
	No. Admitted.	No. Died.	No. Admitted.	No. Died.	No. Admitted.	No. Died.	Death-Rate. Per cent.
Under 1	—	—	1	—	1	—	—
1—2	2	—	3	—	5	—	—
2—3	5	1	6	—	11	1	9.09
3—4	5	—	2	—	7	—	—
4—5	8	—	8	1	16	1	6.25
Total under 5	20	1	20	1	40	2	5.00
5—10	34	—	46	3	80	3	3.75
10—15	20	—	19	1	39	1	2.56
15—20	2	—	10	—	12	—	—
20—25	3	—	12	—	15	—	—
25—30	3	—	2	—	5	—	—
30—35	1	—	1	—	2	—	—
35—40	1	—	1	—	2	—	—
40—45	—	—	—	—	—	—	—
45—50	—	—	1	—	1	—	—
50—55	—	—	—	—	—	—	—
TOTAL ..	84	1	112	5	196	6	3.06

OTHER DISEASES.

Measles	...	...	...	...	...	...	19
Erysipelas	...	...	...	...	...	...	7
Tubercular Meningitis	...	...	...	...	...	...	2
Puerperal Fever	...	...	...	...	...	...	2
Tonsillitis	...	...	...	...	...	...	9
Chicken Pox	...	...	...	...	...	...	10
Cerebro Spinal Fever	...	...	...	...	...	...	10
Mumps	...	...	...	...	...	...	1
Pneumonia	...	...	...	...	...	...	5
							—
TOTAL	...	...	...	...	...	...	65

Only 18 cases of Scarlet Fever and 15 of Enteric Fever were admitted.

The deaths occurred from the following causes: 6 from Diphtheria, 4 from Enteric Fever, 6 from Cerebrospinal Fever, 2 from Tubercular Meningitis, 3 from Pneumonia, and 1 from Puerperal Fever.

SUMMARY.

YEAR.	SMALL-POX.			ENTERIC FEVER.			SCARLET FEVER.			DIPHTHERIA.			OTHER DISEASES.			TOTALS.			From 1884 to 1919.	
	Cases.	Deaths.	Death-rate per 100.	Cases.	Deaths.	Death-rate per 100.	Cases.	Deaths.	Death-rate per 100.	Cases.	Deaths.	Death-rate per 100.	Cases.	Deaths.	Death-rate per 100.	Cases.	Deaths.	Death-rate per 100.	Aggregate No. of days spent in Hospital.	Average No. of days for each Patient.
1884	3	..	..	93	17	18.2	237	11	4.6	..	..	..	29	4	13.7	362	32	8.8	14,215	39½
1885	28	2	7.14	89	6	6.74	456	19	4.16	..	..	..	23	8	34.7	596	35	5.89	21,391	36
1886	4	..	..	83	8	9.63	625	29	4.64	..	..	..	14	2	14.3	726	39	5.37	29,305	40½
1887	3	..	..	79	7	8.86	830	21	2.27	..	..	..	9	5	55.5	921	33	3.58	38,609	42½
1888	16	2	12.5	57	6	10.53	283	12	4.24	..	..	..	11	1	9.9	367	21	5.72	16,479	46
1889	9	1	11.11	90	26	28.89	355	40	11.27	..	..	..	36	6	16.67	490	73	14.90	21,315	43½
1890	..	..	..	59	11	18.64	380	22	5.78	..	..	..	43	12	27.90	484	45	9.30	19,940	41½
1891	..	..	..	76	15	19.6	780	83	10.6	..	..	..	39	10	25.6	897	108	12.04	39,838	44
1892	25	4	16.6	41	11	26.8	587	27	4.6	..	..	..	32	7	21.8	685	49	7.2	29,191	42½
1893	935	100	10.6	11	4	36.3	228	17	7.8	..	..	..	12	1	8.3	1186	122	10.2	34,203	28.8
1894	..	..	..	42	8	19.0	525	30	5.7	..	..	..	16	..	..	583	38	6.5	27,124	46.5
1895	..	..	..	97	20	20.6	250	16	6.4	..	..	..	28	9	32.14	375	45	12.0	17,331	46.21
1896	..	..	..	77	15	19.4	248	14	5.6	..	..	..	21	6	28.5	346	35	10.1	17,368	50.1
1897	..	..	..	74	11	14.8	226	5	2.21	..	..	..	17	8	47.05	317	24	7.5	14,549	45.8
1898	..	..	..	162	21	12.9	556	7	1.2	..	..	..	42	16	38.09	760	44	5.8	35,112	46.2
1899	..	..	..	131	16	12.2	1658	74	4.4	..	..	..	24	11	45.8	1813	101	5.5	87,024	48

1900	..	..	..	..	5-1	..	..	..	34	6	17-6	1030	86	8-3	47,998	46-6
1901	..	..	..	..	3-1	..	..	..	36	12	33-3	746	48	6-4	33,868	45-3
1902	..	..	..	..	4-5	111	23	20-7	28	6	21-8	789	69	8-7	35,347	44-8
1903	..	..	..	..	4-06	96	22	22-9	25	6	24-0	668	60	8-9	30,193	45-1
1904	..	..	..	..	3-09	437	85	19-4	28	5	17-8	1079	124	11-4	44,454	41-2
1905	..	..	..	..	5-6	275	37	13-4	24	4	16-6	954	84	8-8	41,403	43-4
1906	..	..	..	..	3-17	183	14	7-65	15	6	40-0	1013	62	6-12	42,850	42-3
1907	..	..	..	..	3-2	141	16	11-34	13	2	15-3	578	40	6-9	23,871	41-3
1908	..	..	..	..	1-82	177	15	8-47	10	3	30-0	768	45	5-8	32,640	42-5
1909	..	..	..	..	2-09	175	24	13-71	32	8	25-0	861	50	5-8	35,559	41-3
1910	..	..	..	..	1-9	209	14	6-6	18	4	22-2	751	40	5-3	30,190	40-2
1911	..	..	..	..	1-08	271	23	8-4	29	8	27-5	760	54	7-1	33,668	44-3
1912	..	..	..	..	1-9	255	27	10-5	40	10	25-0	882	76	8-6	38,278	43-4
1913	..	..	..	..	1-8	291	34	11-6	25	7	28-0	683	53	7-7	29,095	42-6
1914	..	..	..	..	1-8	239	19	8-0	33	3	9-1	635	35	5-5	25,056	39-5
1915	..	..	..	..	5-2	315	37	11-7	88	14	15-9	761	73	9-5	30,316	40-1
1916	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1917	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1918	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1919	..	..	..	..	..	196	6	3-06	65	12	18-5	294	22	7-5	9,115	31

(B) SPECIAL HOSPITAL ACCOMMODATION.

For the past six years the local authority has made special arrangements for the treatment of ophthalmia neonatorum in hospital, and for the treatment of the nursing mother at the same time. The authority also treat in hospital operative cases of diseases of the throat, nose, ear, and eye, occurring among children chiefly.

The following summary shows the cases treated in 1919:—

	Remaining in Hospital 31st Dec. 1918.	Admitted.	Discharged.	Died.	Remaining in Hospital 31st Dec., 1919.
Ophthalmia Neonatorum ...	...	43	42	...	1
Mothers ... ..	...	23	23	...	...
Tonsils and Adenoids ...	...	666	666	...	...
Eye Cases	2	38	40	...	—
Ear Cases	2	25	27	...	—
Nose Cases ... ..	...	6	6	...	...
Other Cases ... ..	...	44	44	...	...
Totals	4	845	848	...	1

(C) AMBULANCE WORK AND DISINFECTION.

The ambulance station for cases of Infectious Disease is situated at the Disinfecting Station, Canal Road. The number of patients removed in 1919 by the ambulances was 1037.

The total number of articles disinfected at the Disinfecting Station in Canal Road during the year, was 11,437. The number of houses disinfected by the Disinfecting Officer was 1,156. In addition, disinfection was carried out at the request of manufacturers, property owners, and others, for which a charge was made. The amounts received totalled £24 14s.

(D) PUBLIC MORTUARY AND CREMATORIUM.

During the past year 80 bodies have been deposited and 38 post-mortem examinations made.

The remains of 30 persons were cremated during 1919 at the Scholemoor Crematorium, in comparison with 20 during the previous year.

The following table, prepared by the Cremation Society of Great Britain, shows the number of Cremations carried out in Great Britain since the year 1885.

Year	Number of Cremations
1885	1
1886	1
1887	1
1888	1
1889	1
1890	1
1891	1
1892	1
1893	1
1894	1
1895	1
1896	1
1897	1
1898	1
1899	1
1900	1
1901	1
1902	1
1903	1
1904	1
1905	1
1906	1
1907	1
1908	1
1909	1
1910	1
1911	1
1912	1
1913	1
1914	1
1915	1
1916	1
1917	1
1918	1
1919	30
1920	20
1921	20
1922	20
1923	20
1924	20
1925	20
1926	20
1927	20
1928	20
1929	20
1930	20
1931	20
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2019	20
2020	20
2021	20
2022	20
2023	20
2024	20
2025	20
2026	20
2027	20
2028	20
2029	20
2030	20

Table of Cremations carried out in Great Britain since the year 1885.

	1885-94	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Total.
Woking ...	583	150	137	173	240	240	301	273	275	*143	138	95	140	108	119	105	106	114	125	128	124	153	125	129	142	181	4547
Manchester ...	80	58	52	51	62	88	83	96	81	92	98	97	90	98	116	106	114	124	149	172	184	165	179	178	197	235	3045
Glasgow	1	10	16	12	16	20	18	20	24	19	35	44	30	28	30	28	39	44	49	57	63	71	67	74	84	899
*Liverpool	2	10	27	23	40	40	54	35	40	35	46	34	32	46	37	50	52	66	48	54	58	62	69	89	1049
*Hull...	17	13	18	20	15	17	29	37	15	21	25	27	23	16	34	25	24	43	46	465
Darlington	1	2	1	7	4	13	8	6	9	9	12	15	11	11	16	10	15	17	26	193
Golder's Green...	5	158	220	252	298	290	364	421	415	542	591	602	671	730	633	719	820	919	8650
*Leicester...	1	5	8	16	12	12	14	19	16	13	14	11	7	22	23	34	42	36	305
Birmingham	1	19	22	25	33	18	30	38	44	40	59	53	45	63	49	64	76	679
*Leeds	16	15	16	24	19	12	17	24	16	28	20	22	17	34	30	310
*Ilford...	9	23	18	19	24	22	20	32	21	42	45	43	68	70	68	524
*Bradford	1	14	13	6	13	14	13	9	15	18	12	11	10	20	31	200
*Sheffield	7	6	18	12	18	8	10	12	15	20	21	14	25	50	41	275
Norwood	30	89	118	153	169	559
Total	663	209	201	250	341	367	444	445	451	477	569	604	743	707	795	855	840	1023	1134	1188	1279	1410	1366	1515	1795	2031	21,700

* Municipally controlled.

VIII.—HOUSING.

The number of new houses built during the past ten years in each Ward and certified as fit for human habitation in accordance with the Bradford Waterworks and Improvement Act, 1871, is shown in the Table on page 72. The following statement shows the number of new buildings certified each year since 1905 as fit for human habitation.

Year.	New Buildings.	Year.	New Buildings.	Year.	New Buildings.
1905	1057	1910	626	1915	306
1906	655	1911	396	1916	128
1907	637	1912	393	1917	32
1908	486	1913	349	1918	38
1909	476	1914	394	1919	6
1905 -09	662 (average)	1910 -14	432 (average)	1915 -19	102 (average)

It will therefore be noticed that during the past fourteen years there has been a serious diminution in the number of new houses being built and that during the past three years the building of houses has practically ceased.

NEW BUILDINGS.

Showing number of New Buildings certified as fit for habitation in each of the Wards, and in the whole City, during the years 1910-1919.

WARDS.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
Allerton	62	40	21	10	13	10	4	...	2	...
Bolton	55	15	10	13	3	...	...	...	...	...
Bradford Moor	50	31	81	60	31	38	28	5	...	...
East	1	14	10	...	23	14	...	...	...	...
East Bowling... ..	3	12	39	6	3	...	...	...	...	...
Eccleshill	46	23	25	31	20	16	2	1	...	...
Exchange ... ..	...	...	...	...	2	1	...	...	...	...
Great Horton	42	37	32	58	62	26	21	6	...	...
Heaton	23	11	34	38	40	43	8	7	2	...
Idle	13	21	10	32	36	34	5	...	...	...
Listerhills ... ..	...	...	...	...	...	...	...	...	...	...
Little Horton	16	4	4	7	2	...	...	...	4	...
Manningham	88	68	42	24	37	17	17	7	...	...
North	3	20	6	2	...	...	...	1	...	...
North Bierley East	4	8	8	...	3	13	7	1	29	...
North Bierley West	44	29	20	21	48	28	4	2	...	1
South ... ..	...	...	1	1	...	...	...	...	...	...
Thornton	1	3	...	1	2	1	...	2	...	...
Tong	26	35	15	20	...	2	...	...	1	...
West	114	...	2	...	62	...	...	...	...	...
West Bowling	35	25	33	25	7	63	32	...	...	5
CITY TOTAL...	626	396	393	349	394	306	128	32	38	6

The number of dwelling-houses in the City is about 74,000, and of those 61,757 are regarded as working class dwellings, and these latter may be divided into the following classes:—

Type of House.	No. of Houses.	Weekly Rent exclusive of Rates.
(a) House with living room, scullery, and two bedrooms	5862	3/9
(b) Living room, scullery, and 3 bedrooms ..	13107	4/8
(c) Parlour, living room, scullery, and 2 bedrooms	2274	5/-
(d) Parlour, living room, scullery, and 3 bedrooms	7000	5/6
(e) Parlour, living room, scullery, and 4 bedrooms	4000	6/9
(f) Tenements in Block Buildings	177	4/-
(g) Other working class dwellings:—		
(1) One room	900	2/3
(2) Living room and 1 bedroom ..	9500	2/10
(3) Living room and 2 bedrooms ..	14318	3/6
(4) Living room and 3 bedrooms ..	4619	4/5
Total No. of Houses	61757	

The average number of working class houses built annually during the five years before the war is 370, and the number of working class houses built between January 1st, 1915, and December 31st, 1918, is 400.

There is in Bradford an estimated number of 5,000 tenements with more than two occupants per room, with an estimated population of 32,000, and there are 2,200 houses occupied by two or more families without having been specially adapted.

Estimate of Housing Needs.

The number of working class houses required during the next three years is as follows:—

	No. of Houses.
(a) To meet the unsatisfied demand for houses (taking account of growth of population, overcrowding, and to meet deficiencies arising from industrial development)	5000
(b) Re-house persons to be displaced by the clearance of unhealthy areas	3694
(c) Replace other dwellings which are unfit for human habitation and cannot be made fit	1306
(d) Replace other houses which, although they cannot at present be regarded as unfit for human habitation, fall definitely below a reasonable standard*	Many thousands.
Total	10000

* At present there are at least 33,000 back-to-back houses in Bradford.

Improvement, etc., Areas. For the improvement of housing conditions in Bradford the following areas will have to be dealt with:—

- (1) Unhealthy areas for the purposes of an Improvement or Reconstruction Scheme or Schemes under Part I. or Part II. of the Act of 1890.

Area.	Acreage. (Approx.)	No. of Houses.	Population. (Approx.)
BROOMFIELDS AREA :— Bounded by Leeds Road, Peel Street, Adolphus Street, Wakefield Road, Gt. Northern Rly., Oliver Street, Walton Street, Mill Lane, Fitzwilliam Street, Edward Street, and Vicar Lane.	45.00	1295	4800
WAPPING AREA :— Bounded by Lingard Street, Wapping Road, Craven Street, North Wing, Barkerend Road, Stott Hill, and Bolton Road.	14.75	601	2500
WHITE ABBEY AREA :— Bounded by Springfield Street, Primrose Street, Wood Place, Lumb Lane Mills, Lumb Lane, King Street, White Abbey Road, City Road, Worthington Street, and Hind Street.	16.43	590	2300

(2) Areas which may have to be dealt with by Improvement or Reconstruction Schemes under Part I. or Part II. of the Act of 1890.

Area.	Acreage. (Approx.)	No. of Houses.	Population. (Approx.)
NEW LEEDS AREA :— Bounded by Leeds Road, Laurel Street, Gibson Street, Hubert Street, Beck Street, Concordia Street, Birksland Street, Gt. Northern Railway, Jackson Street, Mount Street, Fullerton Street, and Hammer-ton Street.	41.84	1208	4800

The houses in the above areas are almost all of a back to back type, are badly constructed, and in worn-out condition, with unhealthy surroundings. The environment of all the houses is bad and in a great many there is insufficiency of daylight. In a large number there is no chance of getting a reasonable supply of fresh air, from the fact that the houses are built in crowded courts. In many of these court yards, privy middens exist, and the stench from these pervades the court yard and permeates into the interior of the houses. The conveniences are constantly falling out of repair, and, like the yards, are used by more than one house and seldom kept in a reasonably clean state. These areas have no equal in the City and are the most insanitary. The houses in these areas, as a result, have been constantly subject to notices under the Public Health Act, and further action with respect to them along Improvement lines has been suspended owing to the outbreak of the war.

The Improvement Schemes should not provide for re-housing any considerable percentage of the population dis-housed on the cleared area; the majority of the dis-housed population should find housing further from the centre of the City.

- (3) Considerable areas which contain a large proportion of seriously defective houses, which can be dealt with otherwise by Improvement or Reconstruction Schemes.
- (a) Area bounded by Leeds Road, Harris Street, Barker-end Road, Pit Lane, Leeds Road Dyeworks, Upper Moss-car Street, and Corporation Yard.
 - (b) Area bounded by Lingard Street, Bolton Road, Wharf Street, Coleman Street, and Wapping Road.
 - (c) Area bounded by Otley Road, Paperhall Street, and North Wing.
 - (d) Area bounded by Thornton Road, Preston Street, Sun-bridge Road, and Sugden Street.

- (e) Area bounded by Manchester Road, Roundhill Street, Park Road, Park Lane, Elizabeth Street, Swan Street, Abram Gate, Croft Street, Nelson Street, Great Northern Railway, Jesse Street, Gower Street, and Wood Road.
- (4) Considerable areas, which, although in fair sanitary condition, nevertheless for one reason or another fall definitely below the ultimate standard at which it is reasonable to aim, or contain a large proportion of houses which fall below such standard.
- (a) Lee Square, Lee Row, William Square, School Square, and Daniel Street, Bradford Moor.
- (b) District lying between Idle Road, Otley Road, Dudley Hill Road, and Wellington Road, Undercliffe.
- (c) Bowling Back Lane and Wakefield Road to Railway Bridge.
- (d) Hampton Place, Railway Place, and Moorfield Place, Idle.
- (e) Between Otley Road and Heap Lane from Timber Street to Albert Street.
- (f) Between Bowling Back Lane, Birkshall Lane, and Railway.
- (g) Between Peace Street, Pawson Street, Sticker Lane to Upper Croft Mills.
- (h) Between Railway, Wakefield Road, and Back Lane.
- (i) Between Canal Road, and Bolton Road from Wharf Street to Delvers' Arms.
- (j) Between Springmill Street, Manchester Road and Great Northern Railway.

The following is the suggested Scheme of the Bradford City Council for the provision of new houses under Section 1 of the Housing, Town Planning, etc., Act of 1919:—

		No. of Houses.
1. Approximate No. of new houses to be provided:—		
(a)	Houses with living-room, scullery, and 2 bedrooms	1000
(b)	Living-room, scullery, and 3 bedrooms ..	4000
(c)	Parlour, living-room, scullery, and 3 bedrooms	4000
(d)	Parlour, living-room, scullery, and 4 bedrooms	1000
Total No. of Houses ..		10000

It is proposed to build these houses on various sites on the outskirts of the City. The number of houses per acre will be 10. The following sites have been selected and acquired:—

No.	Scheme.	Approx. Acreage.
1	Odsal, Southfield Estate	55·00
2	Thornbury Estate	16·00
3	Rushton House (Bradford Moor Estate) ..	63·00
4	Scholemoor Estate	53·00
5	Ainsbury Avenue	75·00
6	Eccleshill Estate	108·50
7	Wyke Estate	40·65
8	Chellow Grange Estate	80·50
9	Bierley Lane Estate	84·35
10	Thornton Site	36·67
11	Swain House Estate (Five Lane Ends) ..	80·48
12	Lower Grange Farm Estate	96·68
13	Woodhall Estate	269·50

During 1919 the amount of work done in inspection under the Housing Acts was comparatively small, 207 houses being inspected, of which 16 were reported to the Local Authority. The number of representations made was 10, and the number of closing orders, 10, while 6 notices were served under Sec. 28 of the Housing and Town Planning, etc., Act, 1919. No demolition orders were made and no houses were made good after closing orders.

APPENDIX.

TABLE I.
VITAL STATISTICS OF WHOLE DISTRICT DURING 1919 AND PREVIOUS YEARS.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT.			
		Un-corrected Numbers	NETT.		Number.	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 Year of Age.		At all Ages.	
			Number.	Rate.					Number.	Rate per 1,000 Nett Births.		
1914	290,642	5702	5709	19.64	4490	15.45	106	196	693	122	4580	15.76
1915	280,737	5055	5062	17.36	4617	16.45	108	236	622	123	4745	16.90
1916	271,105	4913	4918	16.67	4157	15.33	149	328	581	118	4336	15.99
1917	266,338	3901	3879	13.06	3960	14.87	172	297	513	132	4085	15.34
1918	259,707	3909	3871	13.30	4776	18.38	176	369	477	123	4969	19.13
1919	282,714	4083	4023	13.40	4553	15.80	131	265	454	113	4087	16.27

TABLE II.
CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1919.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.						TOTAL CASES NOTIFIED IN EACH LOCALITY.													TOTAL CASES REMOVED TO HOSPITAL.										
	At all Ages.	At Ages—Years.						Alerton.	Bolton.	Bradford Moor.	East.	East Bowling.	Eccleshill.	Exchange.	Great Horton.	Heaton.	Idle.	Listerhills.	Little Horton.		Manningham.	North.	North Bierley East.	North Bierley West.	South.	Thornon.	Tong.	West.	West Bowling.	
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.																							65 and upwards.
Measles ...	2416	65	1254	1056	30	8	3	135	20	273	133	132	88	17	188	77	214	87	135	208	48	62	165	106	7	7	60	254	21	
Smallpox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cholera ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria (including Membranous Group) ...	359	4	70	204	54	23	4	6	11	19	13	20	6	2	64	31	14	18	21	24	20	7	7	18	9	10	6	33	280	
Erysipelas ...	110	...	...	8	11	30	54	2	1	3	7	3	3	2	10	5	5	9	13	4	4	3	1	3	2	2	4	24	6
Scarlet Fever ...	248	...	32	180	25	11	...	17	11	20	14	4	3	1	33	27	8	15	8	27	3	11	5	12	3	10	2	14	176	
Typhus Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever ...	28	...	3	7	4	7	7	1	...	3	1	4	...	...	1	2	...	2	4	...	2	2	...	3	...	1	...	2	21
Continued Fever ...	4	...	...	...	2	1	...	...	3	...	...	2	...	...	...	...	...	1	...	2	4	...	...	...	...	...	...	...	3
Puerperal Fever ...	16	...	...	...	1	15	...	1	...	...	...	...	...	...	...	...	...	...	...	2	4	...	...	2	...	...	...	...	1
Cerebro-Spinal Meningitis ...	18	2	1	5	7	3	...	...	1	1	5	2	...	...	1	1	1	...	1	...	3	...	...	...	1	...	2	...	16
Poliomylitis ...	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ophth. Neonatorum ...	91	91	...	...	...	...	...	2	3	7	9	11	...	...	2	1	3	8	...	15	5	3	...	...	2	...	5	6	32
Pulmonary Tuberculosis ...	395	2	5	43	86	166	78	7	4	27	36	29	7	6	23	12	9	20	32	27	31	18	11	39	5	10	20	22	...	
Other forms of Tuberculosis ...	67	3	16	24	9	11	3	...	2	8	5	1	1	...	3	4	...	6	6	7	3	1	1	8	1	1	2	7	...	
Infective Enteritis ...	86	41	37	4	1	3	...	...	3	3	1	10	3	3	4	1	10	11	19	2	5	...	...	7	...	1	2	4	...
Anthrax ...	2	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Scabies ...	1298	27	125	667	194	211	58	13	26	103	83	46	55	19	79	71	45	114	87	116	73	24	17	70	13	22	56	166	...	
Polio-encephalitis ...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Encephalitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lethargica ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia ...	375	19	47	48	46	102	80	33	11	26	16	15	12	10	17	32	15	29	24	30	9	18	5	25	4	12	10	43	1	
Malaria ...	93	...	...	2	15	68	8	...	1	3	9	16	4	3	5	1	8	6	16	2	4	1	1	5	1	1	...	5	...
Dysentery ...	3	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...
TOTALS ...	5613	254	1591	2250	485	663	296	74	196	93	505	339	284	179	63	431	265	332	326	371	464	214	150	216	305	46	79	169	586	557

TABLE III.

CAUSES OF, AND AGES AT DEATH DURING THE YEAR 1919.

CAUSES OF DEATH.	NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.									TOTAL DEATHS WHETHER OF "RESIDENTS" OR "NON-RESIDENTS" IN INSTITUTIONS IN THE DISTRICT.	
	All ages.	Under 1.	1 and under 2.	2 and under 5.	5 and under 15.	15 and under 25.	25 and under 45.	45 and under 65.	65 and upwards.		
All causes	Certified ...	4680	452	111	144	172	215	621	1324	1641	927
	Uncertified	7	2	2	3	...
Enteric fever ...	9	...	...	1	1	...	4	3	...	4
Smallpox ...	...	...	...	...	...	...	...	...	...	...
Measles ...	6	2	3	1	...	...	...	...	...	1
Scarlet fever ...	5	...	3	...	2	...	...	...	...	5
Whooping-cough ...	2	...	...	2	...	...	...	...	...	...
Diphtheria and croup	28	1	1	12	14	...	...	...	...	6
Influenza ...	621	35	30	48	34	61	143	162	108	50	
Erysipelas ...	5	...	...	...	...	...	...	4	1	...
Phthisis (Pulmonary Tuberculosis) ...	316	...	1	1	13	57	128	100	16	97	
Tuberculous Meningitis ...	23	...	2	10	8	2	...	1	...	5	
Other tuberculous diseases ...	39	4	1	5	10	8	2	6	3	15	
Cancer, malignant disease ...	381	...	...	...	1	1	32	187	160	106
Rheumatic fever ...	18	...	...	1	3	2	3	6	3	1
Meningitis ...	29	6	3	4	6	3	3	3	1	11	
Organic Heart Disease ...	406	1	...	...	2	11	42	144	206	41
Bronchitis ...	538	27	11	4	3	5	25	146	317	99	
Pneumonia(all forms)	326	43	26	26	26	16	44	79	66	65	
Other diseases of Respiratory organs ...	62	4	...	1	5	2	7	25	18	7	
Diarrhœa and Enteritis ...	38	34	4	...	...	...	...	...	...	22
Appendicitis and Typhlitis ...	22	...	...	1	10	3	4	2	2	19
Cirrhosis of liver ...	13	1	...	...	...	...	2	5	5	2
Alcoholism ...	...	...	...	...	...	...	...	...	...	...
Nephritis and Bright's Disease...	114	...	2	1	...	2	17	54	38	15	
Puerperal fever ...	11	...	...	...	...	2	9	...	...	9
Other accidents and Diseases of pregnancy & parturition	15	...	...	...	...	3	12	...	...	8
Congenital debility and Malformation, including premature birth ...	199	198	...	...	1	...	...	...	...	29
Violent deaths, excluding Suicide ...	121	7	4	10	9	8	19	30	34	64	
Suicides ...	33	...	...	...	...	2	11	16	4	7
Other defined diseases ...	1258	90	19	16	22	25	110	326	650	233	
Diseases ill-defined or unknown ...	49	1	1	...	2	2	4	27	12	6	
	4687	454	111	144	172	215	621	1326	1644	927	
Sub-Entries included in above figures	Anthrax ...	6	...	...	...	...	2	3	1	1
	Encephalitis	2	...	...	..	1	...	1	...	1
	Lethargica	2	...	...	..	1	...	1	...	1
	Cerebro-spinal Meningitis ...	8	1	3	2	2	8
Poliomyelitis	1	...	...	...	1	...	...	...	...	...

TABLE IV.
 INFANT MORTALITY, 1919. NETT DEATHS FROM STATED CAUSES AT VARIOUS AGES UNDER 1 YEAR OF AGE.

CAUSES OF DEATH.	Total under 1 year.									
	Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	1 month.	1-3 months.	3-6 months.	6-9 months.	9-12 months.	Total Deaths under 1 year.
All Causes.	135	24	17	11	187	74	81	56	54	452
	2	..	..	..	2	..	..	..	..	2
Small-pox
Chicken-pox
Measles	2	2
Scarlet Fever
Whooping Cough...
Diphtheria and Croup	1	..	..	..	1
Erysipelas
Tuberculous Meningitis
Abdominal Tuberculosis	1	1	2
Other Tuberculous Diseases	1	1	..	2
Meningitis (<i>not Tuberculous</i>)	1	1	..	2	1	2	6

Convulsions ...	8	2	1	1	12	6	6	7	3	34
Laryngitis ...	...	...	...	...	...	...	...	...	...	...
Bronchitis ...	...	1	1	...	2	4	7	12	2	27
Pneumonia (all forms) ...	...	...	...	1	1	4	7	7	3	43
{ Diarrhoea ...	...	...	...	1	...	6	10	...	1	17
{ Enteritis ...	...	...	...	...	1	...	...	1	...	2
Gastritis ...	...	...	...	2	9	9	10	1	2	31
Syphilis ...	...	3	2	...	...	...	...	...	...	...
Rickets ...	...	...	...	...	...	...	...	...	...	...
Suffocation, overlying ...	1	...	...	...	1	2	1	...	...	4
Injury at birth ...	3	...	...	...	3	...	...	...	...	3
Atelectasis ...	3	...	...	...	3	...	...	...	...	3
{ Congenital Malformations ...	10	4	1	...	15	6	5	4	...	30
{ Premature Birth ...	84	11	7	1	103	9	2	...	...	114
{ Atrophy, Debility and Marasmus ...	20	1	2	1	24	17	4	1	8	54
Other Causes ...	6	2	3	2	13	4	11	18	16	62
	137	24	17	11	189	74	81	56	54	454

Nett Births in the year { legitimate, 3703,
illegitimate, 320.

Nett Deaths in the year { legitimate infants, 388,
illegitimate infants, 66.

TABLE V.
 PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912.
 Summary of Notifications during the period from 30th December, 1918, to the 3rd January, 1920.

AGE PERIODS.	NUMBER OF NOTIFICATIONS ON FORM A.														NUMBER OF NOTIFICATIONS ON FORM B.				NUMBER OF NOTIFICATIONS ON FORM C.			
	Primary Notifications.														Primary Notifications				Total Notifications (i.e., including cases previously notified by other doctors).	Poor Law Institutions	Sanatoria	
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Total	Under 5	5 to 10	10 to 15	Total						
Pulmonary																						
Males ..	1	11	10	20	21	52	47	33	26	12	233	—	—	—	—	3	309					
Females ..	2	4	8	13	21	24	42	25	13	6	161	—	1	—	1	1	179					
Non-pulmonary																						
Males ..	1	9	4	7	4	3	2	6	1	—	38	—	—	—	—	3	11					
Females ..	2	7	10	1	2	—	2	1	—	1	27	—	2	—	2	1	16					



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