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City of Birmingham.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1917.

BIRMINGHAM:
HUDSON AND SON, PRINTERS, EDMUND STREET AND LIVERY STREET.
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PUBLIC HEALTH DEPARTMENT,

THE COUNCIL HOUSE,

BIRMINGHAM,

July, 1918.

TO THE CHAIRMAN AND MEMBERS OF THE PUBLIC HEALTH COMMITTEE.

GENTLEMEN,

I herewith submit a report on the main features of the health statistics of Birmingham for the year ending December 29th, 1917.

The outstanding fact is that in spite of the stress and strain which the whole population is under we have had the healthiest year on record so far as the city is concerned.

The general death-rate and the infant mortality rate were both lower than ever before. Many of the records in regard to individual diseases also are as low or lower than ever.

The fact that the reduction in the death-rate and consequent preservation of life is a continuously progressive one is of great importance, and while much is yet to be desired, it gives us great hope that much more will be accomplished by the policy of educating the public in the plain truths of healthy living.

During the past few years I have pointed out that our greatest need is more houses to reduce the overcrowding, and new houses to replace the unwholesome back-to-back courtyard houses. The people will readily leave most of these unhealthy dwellings if they can get something better.

There has been considerable difficulty in carrying on all branches of our work during the year. We have replaced highly-skilled men by unskilled, and some of the work has had to be left undone.

I am glad to say that the staff has risen to any pressure put on it most willingly and efficiently. I am specially glad to be able to bring to your notice the very conscientious work of Dr. Beazeley, the only remaining assistant Medical Officer of Health, and of Mr. Thompson, the Chief Inspector of Nuisances.

I am, Gentlemen,

Your obedient servant,

JOHN ROBERTSON, M.D. B.Sc.

City of Birmingham.

REPORT OF THE MEDICAL OFFICER OF HEALTH

For the year 1917.

POPULATION.

In this report the estimate of the population which has been made locally has been used throughout. It is for all purposes 900,000. The Registrar-General issued an estimate of 970,039 for calculations of birth-rate, and of 870,211 for calculations of death-rate.

Towards the close of the year an estimate was made from the cards issued under the Food Controller's Registration Scheme of approximately 870,000 persons.

At the instigation of the Public Health Committee, the information from sugar cards was tabulated in streets and wards, and in the table on page 9 will be found the ward populations calculated on the basis of the distribution thus shown

The age and sex distribution of the population has altered profoundly. At the Census there were 110 females for every 100 males in Birmingham. The sugar card census shows 135 females for every 100 males. At the Census in 1911 there were 115 females aged 18 and over for every 100 males of the same age. The recent sugar card Census shows 162 females for each 100 males.

The change in age distribution is pronounced, though perhaps not so disturbing as that of the sex alteration. The sugar cards show the numbers of males and females under 18 and over 18 at the present time, as compared with corresponding figures before the war, to be as follows :—

Ages.	Sugar Card Census.		Estimated in 1914 from Census Returns.		Increase or Decrease.	
	Males.	Females.	Males.	Females.	Males.	Females.
Under 18 ...	159,385	163,165	161,407	164,164	–2,022	–999
18 and over ...	200,251	323,911	259,320	297,643	–59,069	+26,268
Total ...	359,636	487,076	420,727	461,807	–61,091	+25,269

The chief areas where the sugar card Census indicates great increases are :—

Northfield	27·4%
Erdington North	18·3%
Soho	16·9%
Washwood Heath	14·4%
Erdington South	10·7%

while the areas indicating decline are :—

Small Heath	9·1%
St. Bartholomew's	7·6%
St. Paul's	5·0%
Lozells	4·5%
Duddeston and Nechells	3·9%

MARRIAGES.

There were 7,428 marriages during 1917, as against 8,047 in 1916, and 9,975 in 1915. The marriage-rate was, therefore, 16·6 per 1,000 of the population, as compared with 18·0 per 1,000 in 1916, 22·4 in 1915, 17·0 in 1914, 16·9 in 1913, and 16·0 in 1912.

BIRTHS.

There were 17,706 babies born in 1917, or 2,912 fewer than in 1916, giving a birth-rate of 19·7 per 1,000. If the mean rate which was registered for the five years ending December, 1913, had continued in 1917, there would have been 6,259 more babies born in 1917.

The loss to Birmingham during the years 1915, 1916, and 1917 due to this source is 12,034 infants. The birth-rates since 1901 are shown on page 78. The ward birth-rates are set out on page 9, where it will be seen that they have varied from 12·8 per 1,000 at Sparkhill to 28·5 per 1,000 in St. Bartholomew's ward.

ILLEGITIMACY.

There were 834 illegitimate births, as against 717 in 1916, and 702 in 1915. Of the babies born in 1917 4·7% were illegitimate, as compared with 3·5% in the previous year.

Based on all females over the age of 18, the mean rate for the three years ending December, 1914, was 2·4 per 1,000, while in 1917 it was 2·6 per 1,000.

The Registrar-General in his annual report has been able to show the rate which these illegitimate births bear to the unmarried and widowed women, aged 15 to 45. This shows even more clearly than the Birmingham figures the general and steady decline in illegitimacy.

ILLEGITIMACY RATE IN ENGLAND AND WALES PER 1,000 UNMARRIED WOMEN AND WIDOWS (15—45 YEARS).

Period.	Rate per 1,000.
1876—1880	14·4
1881—1885	13·5
1886—1890	11·8
1891—1895	10·1
1896—1900	9·2
1901—1905	8·4
1906—1910	8·1
1911—1915	7·8
1915	7·4
1916	7·6

These figures show that the rate in 1916 for England and Wales was approximately one-half of that in 1876.

The lot of most of these illegitimate infants is a very unhappy one. Many small efforts are being made on behalf of these children, all of whom need some supervision until they are, say, 15 years of age. Fortunately, a national society has recently been formed to consider the whole question, and promote the necessary legislation to enable this large and important problem to be adequately dealt with. If this age limit were adopted, some 6,000 children would come under supervision as illegitimates in Birmingham.

NOTIFICATION OF BIRTHS ACT.

There were 17,073 births reported during 1917, *i.e.*, 97 per cent. of the total births. Under the same Act there were 580 still births reported. During the past five years the mean proportion of still births to live births reported was 3·2 per cent. Of the total births during the year 89 per cent. were visited by the Health Visitors.

DEATHS.

Excluding soldiers and sailors, there were 11,274 deaths of persons belonging to the city in 1917, as compared with 12,081, 12,816 and 13,026 in the three preceding years. The death-rate for 1917 was, therefore, 12·6 per 1,000 of the population—the lowest annual rate ever recorded in Birmingham.

If the Registrar-General's estimate of the population for death-rate purposes be adopted, this rate would be 12·9 per 1,000. Whichever estimate is taken, the record still remains as the best in the history of the city.

DEATH-RATES PER 1,000 IN BIRMINGHAM, 1871 TO 1917.

	Birmingham.	England and Wales.
1871-1875 (Old City)	25·2	22·0
1876-1880 ,, ...	22·8	20·8
1881-1885 ,, ...	20·7	19·4
1886-1890 ,, ...	20·2	18·9
1891-1895 ,, ...	20·3	18·7
1896-1900 ,, ...	20·5	17·7
1901-1905 (Present Area) ...	16·5	16·0
1906-1910 ,, ...	15·0	14·7
1911-1915 ,, ...	14·6	14·1
1916 ,, ...	13·5	14·0
1917 ,, ...	12·6	14·4

COMPARATIVE DEATH-RATES IN SIX LARGEST TOWNS.

(*From Registrar-General's Figures.*)

Glasgow	15·0	per 1,000
Birmingham	12·8	,,
Liverpool	18·0	,,
Manchester	15·1	,,
Sheffield	14·3	,,
Leeds	16·6	,,

The next table gives the figures for death-rates in wards :—

BIRTH AND DEATH-RATES, 1917.

Ward.	Estimated Population.	Birth-Rate.	Death-Rate.
Acock's Green	27,884	19·7	10·9
All Saints'	42,662	22·1	12·7
Aston	44,167	23·1	12·6
Balsall Heath	39,378	18·1	12·2
Duddeston and Nechells	39,566	27·5	17·2
Edgbaston	34,749	13·4	11·5
Erdington North ...	19,101	14·9	9·1
Erdington South ...	19,440	17·4	8·8
Handsworth	28,181	15·0	10·3
Harborne	16,791	16·4	10·1
King's Norton	22,356	14·5	8·0
Ladywood	29,360	23·2	14·4
Lozells	33,172	19·4	12·9
Market Hall	17,964	18·8	15·0
Moseley and King's Heath	27,104	13·4	10·6
Northfield	9,915	16·2	7·5
Rotton Park	40,867	20·7	12·7
St. Bartholomew's ...	36,225	28·5	16·8
St. Martin's	42,397	24·5	17·2
St. Mary's	34,027	23·3	19·7
St. Paul's	28,301	26·7	18·2
Saltley	30,089	20·2	11·0
Sandwell	19,513	16·5	9·5
Selly Oak	27,646	19·2	8·6
Small Heath	26,681	19·9	11·3
Soho	31,799	13·2	10·6
Sparkbrook	37,586	19·2	11·8
Sparkhill	24,252	12·8	9·1
Washwood Heath ...	38,683	20·4	10·2
Yardley	16,447	19·9	9·3

Northfield ward shows the lowest mortality, with a rate of 7·5 per 1,000. It is closely followed by King's Norton, Selly Oak and Erdington South, with rates of 8·0, 8·6 and 8·8 per 1,000 respectively.

At the other end of the scale comes St. Mary's ward with a rate of 19·7 per 1,000, St. Paul's with 18·2 per 1,000, and St. Martin's and Duddeston wards with rates of 17·2.

The mortality rates grouped into central, middle ring, and outer ring of wards are as follows :—

Area.	Death-Rate per 1,000.
Central wards ; population, 227,840	16·9
Middle ring of wards ; population, 368,034 ...	11·9
Outer ring of wards ; population, 290,429 ...	9·4

The figures given previously show that the general mortality of the city is declining year by year. Compared with the five years 1901—1905 the mortality for the two years 1916 and 1917 shows a reduction of 21 per cent., that is, for the whole city.

Owing to the alteration in the ward boundaries at the extension of the city, statistics for the present wards are not available for years prior to 1912. Since then the figures are as follows :—

Ward.	Mean Death-Rate, 1912–1916.	Death-Rate, 1917.	Difference.
Acock's Green	11·4	10·9	–0·5
All Saints'	14·6	12·7	–1·9
Aston	15·2	12·6	–2·6
Balsall Heath	12·7	12·2	–0·5
Duddeston and Nechells	20·6	17·2	–3·4
Edgbaston	11·8	11·5	–0·3
Erdington North	11·0	9·1	–1·9
Erdington South	9·3	8·8	–0·5
Handsworth	10·4	10·3	–0·1
Harborne	10·4	10·1	–0·3
King's Norton	9·7	8·0	–1·7
Ladywood	17·1	14·4	–2·7
Lozells	13·4	12·9	–0·5
Market Hall	17·8	15·0	–2·8
Moseley and King's Heath	9·7	10·6	+0·9
Northfield	10·2	7·5	–2·7
Rotton Park	14·9	12·7	–2·2
St. Bartholomew's	20·6	16·8	–3·8
St. Martin's and Deritend	20·6	17·2	–3·4
St. Mary's	20·5	19·7	–0·8
St. Paul's	20·5	18·2	–2·3
Saltley	12·2	11·0	–1·2
Sandwell	10·0	9·5	–0·5
Selly Oak	11·4	8·6	–2·8
Small Heath	11·5	11·3	–0·2
Soho	12·6	10·6	–2·0
Sparkbrook	12·8	11·8	–1·0
Sparkhill	9·6	9·1	–0·5
Washwood Heath	12·7	10·2	–2·5
Yardley	10·5	9·3	–1·2

The chief causes of death in the city during 1917 are shown in the next table.

Chief Causes of Death.

	No. of Deaths in 1917.	Increase or Decrease compared with 1916.
Organic Diseases of Heart	1,298	+ 8
Pulmonary Tuberculosis	1,169	+ 62
Other Forms of Tuberculosis	236	+ 19
Cancer	912	+ 15
Bronchitis	910	−238
Pneumonia	846	−160
Old Age	611	− 18
Cerebral Hæmorrhage	485	+ 18
Premature Birth	389	− 15
Diarrhœa and Enteritis	366	−123
Accidents and Negligence	340	− 18
Measles	333	−232
Nephritis and Bright's Disease	290	− 17
Infantile Debility, Icterus, etc.	258	− 5
Arterio-sclerosis	152	− 4
Convulsions (under 5)	139	− 26
Whooping Cough	131	−247
Diphtheria	112	− 4

The rate of mortality at various age periods during 1917 was as follows :—

	Deaths.	Death-Rate per 1,000.
Under 1 year	1,791	101·1
1 and under 2	570	35·8
2 ,, 3	291	16·4
3 ,, 4	156	8·8
4 ,, 5	104	5·4
5 ,, 10	249	2·6
10 ,, 15	154	1·7
15 ,, 20	207	2·5
20 ,, 25	218	2·7
25 ,, 35	581	3·7
35 ,, 45	946	7·6
45 ,, 55	1,195	14·2
55 ,, 65	1,559	30·0
65 and upwards	3,253	86·0

INFANT MORTALITY.

(*See special report appended.*)

INFECTIOUS DISEASES.

The deaths during 1917 from the more important infectious diseases were as follows :—

Disease.	Deaths in 1917.	Average 1907-16.	Above or below the average.
Enteric Fever	7	31	− 24
Smallpox	0	0	—
Measles	333	339	− 6
Scarlet Fever	12	115	−103
Whooping Cough	131	256	−125
Diphtheria	112	150	− 38
Diarrhœa and Enteritis	366	591	−225
Pulmonary Tuberculosis	1,169	1,022	+147
Other Forms of Tuberculosis ...	236	261	− 25

The prevalence of the notifiable diseases is shown in the next table :—

Disease.	Cases in 1917.	Average 1907-16.	Above or below the average.
Enteric Fever	22	139	−117
Smallpox	0	0	?
Measles	15,516	?	?
German Measles	472	?	?
Scarlet Fever	1,143	4,606	−3,463
Diphtheria	770	1,146	−376
Erysipelas	378	770	−392
Pulmonary Tuberculosis	3,074	?	?
Other forms of Tuberculosis ...	469	?	?
Cerebro-Spinal Fever	29	?	?
Acute Poliomyelitis	11	?	?
Puerperal Fever	97	89	+ 8
Ophthalmia Neonatorum	237	?	?

In addition to the above the following cases were reported by the elementary school teachers :—

	1917.	1916.	1915.	1914.	1913.
Whooping Cough... ...	2,531	5,783	2,349	4,381	2,638
Chicken Pox	3,266	2,386	4,829	2,973	2,422
Mumps	1,856	1,582	4,459	2,285	4,253

ENTERIC FEVER.

There were 22 cases of this disease reported, with 7 deaths. In 1916 there were 19 cases, with 5 deaths. The death-rate from this disease in Birmingham is about one-third of that in England and Wales.

But for the fact that the reduction in incidence of this disease has followed so closely on the institution of better sanitary methods in Birmingham, reference to the few cases which now occur might be omitted. The fact that in 1901 there were 842 cases, with 133 deaths, and that since then there has been an almost continuous annual reduction, gives courage to deal boldly with other ailments, so that as good results may be obtained.

SMALLPOX.

No case of this disease was reported in 1917. In England and Wales there were 7 cases, and 2 deaths. Birmingham, from its situation, has always escaped sea-borne infection in a remarkable manner.

VACCINATION.

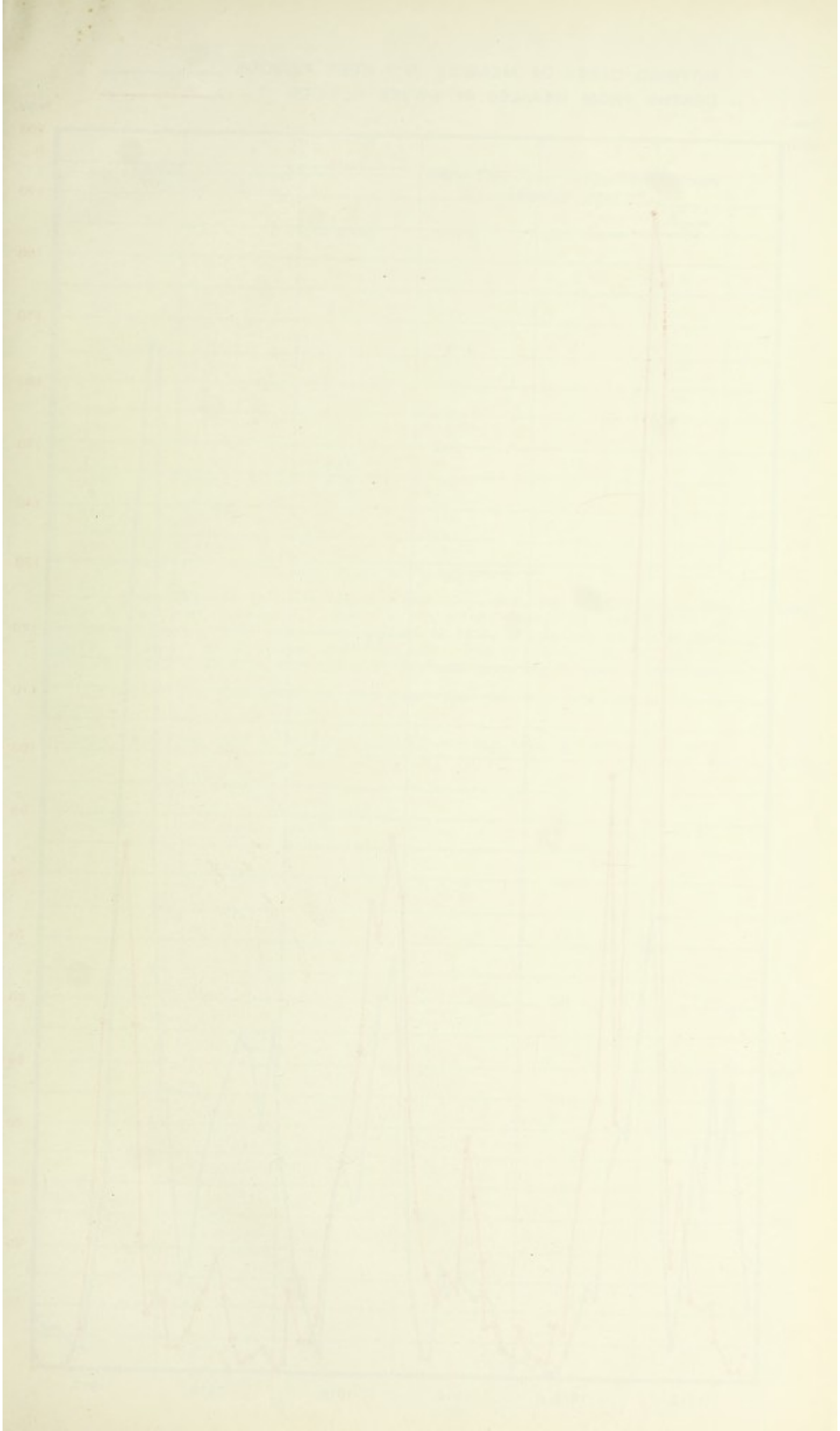
The following statement shows the amount of vaccination performed in regard to infants whose births were registered during the year ending June 30th, 1917 :—

Births returned	20,050	
Conscientious objections...	3,123, or 15·6%	of total.
Died unvaccinated	1,506	
Successfully vaccinated	12,758, or 68·8%	of survivors.
Insusceptible	57, or 0·3%	,,
Postponed by medical certificate ...	491, or 2·6%	,,
Removed to other districts	252, or 1·4%	,,
Lost sight of	849, or 4·6%	,,
Still under notice	1,013, or 5·5%	,,

MEASLES AND GERMAN MEASLES.

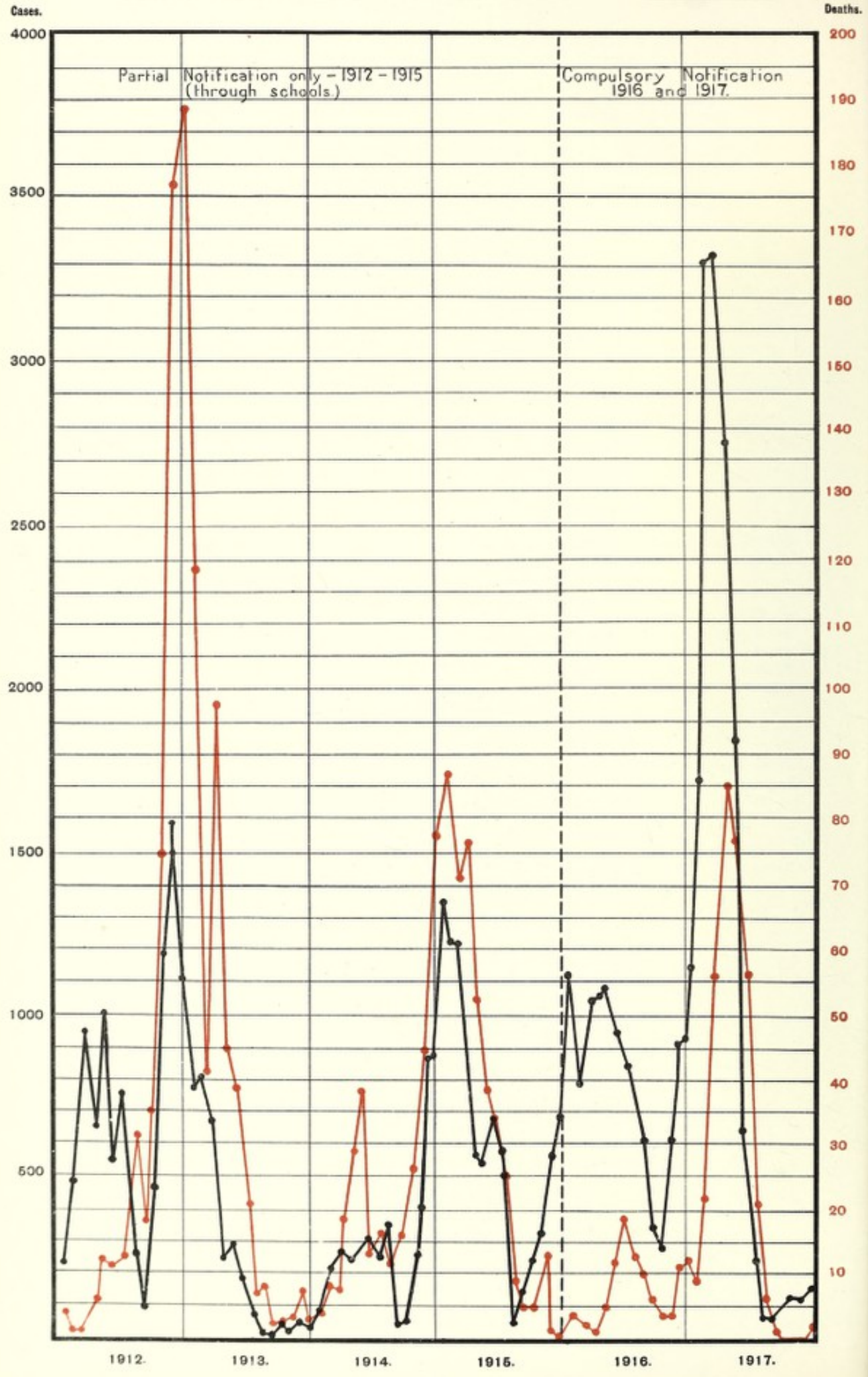
There were 15,516 cases of Measles and 472 cases of German Measles reported during 1917. There were 333 deaths from Measles and 4 from German Measles.

The table following gives information as to notifications and deaths from Measles and German Measles since 1901 :—



NOTIFIED CASES OF MEASLES IN 4-WEEK PERIODS

DEATHS FROM MEASLES IN 4-WEEK PERIODS



	CASES		DEATHS.		Death-Rate (Measles only).
	Measles.	German Measles.	Measles.	German Measles.	
1901	?	?	372	?	·49
1902	?	?	237	?	·31
1903	?	?	245	?	·32
1904	?	?	243	?	·31
1905	?	?	300	?	·38
1906	?	?	275	?	·34
1907	?	?	409	?	·51
1908	?	?	70	?	·08
1909	?	?	676	?	·82
1910	?	?	42	?	·05
1911	?	?	395	?	·47
1912	7,693*	1,088*	571	3	·67
1913	3,661*	85*	398	1	·46
1914	4,612*	61*	310	—	·35
1915	8,144*	680*	420	—	·47
1916	10,635	4,996	101	1	·11
1917	15,516	472	333	4	·37

* Partial notification only through schools.

The chart opposite indicates for the past six years the reported cases and deaths in four-week periods. It shows a well-defined and extensive epidemic of Measles commencing with the fourth quarter of 1916 and ending with the third quarter of 1917. Some special statistics have been extracted relating to this outbreak, which resulted in more than 17,000 cases occurring in the 12 months.

As regards the distribution of the cases over the city, the figures are as follows :—

MEASLES CASES PER 1,000 OF THE POPULATION, OCTOBER, 1916, TO SEPTEMBER, 1917.

Central Wards ...	St. Paul's	22·8	Average 18·6
	St. Mary's	22·6	
	Duddeston and Nechells	25·6	
	St. Bartholomew's	20·8	
	St. Martin's and Deritend	15·9	
	Market Hall	6·6	
	Ladywood	16·3	
Middle Ring ...	Lozells	23·3	Average 18·9
	Aston	28·3	
	Washwood Heath	17·0	
	Saltley	17·5	
	Small Heath	16·3	
	Sparkbrook	20·9	
	Balsall Heath	15·9	
	Edgbaston	10·4	
	Rotton Park	20·2	
	All Saints'	19·2	
Outer Ring ...	Soho	22·2	Average 20·9
	Sandwell	25·3	
	Handsworth	13·8	
	Erdington North	20·8	
	Erdington South	23·6	
	Yardley ...	29·9	
	Acock's Green	28·4	
	Sparkhill	18·3	
	Moseley and King's Heath	12·9	
	Selly Oak	27·8	
	King's Norton	20·3	
	Northfield	10·2	
	Harborne	18·2	

From the table it appears that there is no striking disparity in the prevalence of Measles in the different groups of wards.

When the figures relating to deaths are taken however, the differences become very marked, as shown below :—

	Cases of Measles.	Average Case-Rate per 1,000 Persons.	Deaths from Measles.	Average Death-Rate per 1,000 Persons.	Fatality-Rate per 100 Cases.
Central Wards ...	4,453	18·6	170	·71	3·8
Middle Ring ...	7,058	18·9	148	·39	2·1
Outer Ring ...	6,150	20·9	42	·14	0·7

In order to carry the enquiry as to the incidence of Measles still further, the rates have been worked out for houses of various sizes, and are as follows :—

Size of House.	Number of Cases.	Rate per 1,000 Houses.	Number of Deaths.	Rate per 1,000 Houses.	Deaths per 1,000 Cases.
3 rooms	4,021	100·5	145	3·6	36
4 rooms	2,775	111·0	68	2·7	25
5 rooms	4,650	86·1	71	1·3	15
6 rooms	4,653	96·9	43	·9	9
7 rooms	440	40·0	3	·3	7
8 rooms or over	1,012	63·2	3	·2	3

If the rental be taken instead of the number of rooms, the figures are as follows :—

Rental of House.	Number of Cases.	Rate per 1,000 Houses.	Number of Deaths.	Rate per 1,000 Houses.	Deaths per 1,000 Cases.
Under 5/-	3,503	94·6	126	3·4	36
5/- and under 6/- ...	3,361	112·0	91	3·0	27
6/- and under 7/- ...	5,032	107·1	75	1·6	15
7/- and under 8/- ...	1,956	150·5	16	1·2	8
8/- and under 9/- ...	1,112	92·7	14	1·2	13
9/- and under 10/- ...	479	47·9	2	·2	4
10/- and over	2,108	46·8	9	·2	4

These figures show that the prevalence of Measles in the larger houses is not nearly so great as it is in the smaller houses. This is what might be expected, as the residents in such houses are more widely separated, and therefore less exposed to infection. In the larger houses, too, the proportion of adults in the population is probably larger, and this would lessen the incidence of Measles. The striking disparity, however, in the table is in the mortality figures. Here the table shows that while there were 1,012 cases in houses of eight rooms and upwards, only three proved fatal, equal to a case mortality of 3 per 1,000. In three-roomed houses there were 4,021 cases, and 145 died, giving a case mortality of 36 per 1,000, or 12 times as high.

The difficulty and indeed the impossibility in most cases of isolating a patient in a three-roomed house will be readily realised when it is considered that there are only two bedrooms in such a house, and on an average there would be four inmates besides the patient, while in a large number of cases the number of inmates is very much in excess of the average.

Taking all the houses invaded, irrespective of size, it was found that 5,871 cases were isolated out of the total of 17,551. The number of patients who were being kept in bed at the time the Health Visitor called was 12,371. In 6,370 there was no doctor in attendance.

The next table shows the age incidence of the cases of Measles for the period October, 1916, to September, 1917:—

MEASLES CASES AND DEATHS, OCTOBER, 1916, TO SEPTEMBER, 1917.

Age.	Cases.	Rate per 1,000 of Population.	Deaths.	Rate per 100 Cases.
0—1	829	46·8	72	8·7
1—2	1,773	111·3	131	7·4
2—3	2,150	121·1	83	3·9
3—4	2,181	123·3	33	1·5
4—5	2,244	117·1	15	0·7
5—10	7,624	78·8	23	0·3
10—15	495	5·6	1	0·2
15 upwards ...	381	0·6	2	0·5

The information as to the cases reported in 1917 was obtained as follows:—

	Measles.	German Measles.
Notified by Medical Practitioners	7,394	431
Reported by School Teachers	2,821	10
Reported by Parents	3,991	25
Ascertained by Health Visitors	1,310	6
	15,516	472

The cost of notification of Measles during 1917 was £350.

SCARLET FEVER.

There were 1,143 cases of Scarlet Fever reported, with 12 deaths. This is relatively a low incidence and mortality when compared with former years.

Of the 1,143 cases 901 were removed to hospital, equal to 78 per cent.

The number of return hospital cases as defined in previous reports was 48, which is equal to 5·3 per cent. of the admissions.

WHOOPING COUGH.

There were 2,531 cases of this disease, as compared with 5,783 in 1916, all of these having been reported by school teachers and parents or ascertained by the Health Visitors. There were 131 deaths.

The ages at death for 1916 and 1917 were as follows:—

	1916.	1917.
Under 1 year	162	41
Between 1 and 2 years	130	47
Between 2 and 3 years	47	22
Between 3 and 4 years	21	8
Between 4 and 5 years	8	7
Over 5 years	10	6

The work of the Health Visitors in the homes of the children where Whooping Cough, Measles, or other minor infections exist has been most valuable from the point of view of the preservation of infant life and the prevention of the spread of disease.

DIPHTHERIA AND CROUP.

There were 770 notified cases, with 112 deaths, as compared with 951 cases and 116 deaths in 1916.

The fatality rate for 1917 was, therefore, 14 per cent., as against 12 per cent. in the previous year. There has been, as in former years, a real difficulty in getting cases under treatment early enough. Over and over again the story is told of several days' delay before calling in a doctor. No treatment is as good when commenced late as when begun early, but especially is this the case with the administration of anti-toxin.

The following statement shows the size of the houses in which cases of Diphtheria occurred, and the mortality amongst them, cases in Institutions being ignored :—

1917.

Rooms in House.	Cases Removed to City Hospital.	Deaths in City Hospital.	Fatality per cent.	Cases Removed to Other Hospitals	Deaths in Other Hospitals	Cases Kept at Home.	Deaths at Home.	Fatality per cent.	Total Cases.	Total Deaths.	Fatality per cent.
3 and 4	247	28	11	6	6	32	6	19	285	40	14
5, 6 and 7	276	39	14	4	4	115	14	12	395	57	14
8 to 12	15	1	7	1	1	29	3	10	45	5	11
Total	538	68	13	11	11	176	23	13	725	102	14

DIARRHŒA AND ENTERITIS.

The year under review was, from the point of view of fatal Diarrhœa, one of comparative immunity. Yet no less than 366 deaths were recorded, with a death-rate of ·41 per 1,000.

It will be seen from the subjoined table that the summer was, as regards the number of hot days and the total amount of rain, one which may be described as comparatively cold and wet, and therefore unfavourable to an extensive prevalence of diarrhœa :—

	Deaths from Diarrhœa and Enteritis.	Death-rate per 1,000.	Maximum Air Temperature.*	Days with 75° or over.*	Maximum Soil Temperature (4ft. deep).*	Amount of Rain.*
1901 ...	... 1,320	1·74	88·0	17	56·0	5·91
1902 ...	... 634	·82	81·4	4	53·9	7·51
1903 ...	... 921	1·19	83·8	4	53·8	9·85
1904 ...	... 1,422	1·82	81·8	16	55·8	5·75
1905 ...	... 839	1·06	80·3	7	55·4	7·33
1906 ...	... 1,439	1·80	90·6	15	56·2	2·97
1907 ...	... 511	·63	76·8	1	53·2	6·08
1908 ...	... 873	1·06	82·0	7	54·2	6·94
1909 ...	... 535	·65	84·4	9	54·3	7·63
1910 ...	... 541	·65	73·9	0	53·2	8·24
1911 ...	... 1,390	1·65	93·9	40	57·2	3·27
1912 ...	... 346	·41	82·2	4	53·9	10·99
1913 ...	... 970	1·11	79·4	6	54·0	4·51
1914 ...	... 767	·87	82·6	8	55·3	7·00
1915 ...	... 684	·77	74·6	0	54·3	8·34
1916 ...	... 489	·55	82·1	14	54·8	5·42
1917 ...	... 366	·41	78·4	5	54·0	9·74

*In the third quarter of the year.

TUBERCULOSIS.

All forms of Tuberculosis notified in 1917 ... 3,543 cases; or 3·95 per 1,000 persons living.

Mortality from all forms of Tuberculosis ... 1,405 deaths; or 1·56 per 1,000.

In the 3,543 cases the following parts of the body were attacked :—

The lungs (Pulmonary Tuberculosis)	3,074 cases.
The membranes of the brain (Tubercular Meningitis) ...	50 ,,
The abdomen	87 ,,
The spinal column	10 ,,
The joints	24 ,,
Disseminated Tuberculosis	22 ,,
Tuberculosis of glands and other parts	276 ,,

A.—Pulmonary Tuberculosis.

This is by far the most important variety of Tuberculosis, causing 83 per cent. of the deaths and 87 per cent. of the total notified cases.

The prevalence of the disease is indicated by the following figures :—

Notified Cases of Pulmonary Tuberculosis.

1912.	1913.	1914.	1915.	1916.	1917.
4,394 ...	4,229 ...	3,317 ...	3,027 ...	3,388 ...	3,074

Deaths and Death-Rates from Pulmonary Tuberculosis.

	Deaths.	Death-rate, Birmingham.	Death-rate, England and Wales.
1876—1880 (Old City)	— ...	2·05 ...	2·04
1881—1885 ,,	— ...	1·84 ...	1·83
1886—1890 ,,	— ...	1·69 ...	1·64
1891—1895 ,,	— ...	1·52 ...	1·46
1896—1900 ,,	— ...	1·48 ...	1·32
1901—1905 ,,	— ...	1·56 ...	1·22
1906—1910 ,,	— ...	1·33 ...	1·11
1912 (Enlarged City)	1,088 ...	1·28 ...	1·04
1913 ,, ,,	1,041 ...	1·19 ...	1·01
1914 ,, ,,	1,059 ...	1·20 ...	1·04
1915 ,, ,,	1,141 ...	1·28 ...	1·16
1916 ,, ,,	1,107 ...	1·24 ...	1·18
1917 ,, ,,	1,169 ...	1·30 ...	—

Notified Cases in Age and Sex Groups of Pulmonary Tuberculosis, 1913-1917.

Ages	Males					Females.				
	1913.	1914.	1915.	1916.	1917.	1913.	1914.	1915.	1916.	1917.
Under 10 ...	235	194	188	267	245	177	162	189	251	212
10—15	165	149	138	185	173	155	141	152	215	214
15—20	169	135	90	112	116	157	127	108	125	106
20—25	199	181	129	161	117	315	218	192	170	150
25—35	493	392	326	388	355	583	444	383	334	353
35—45	441	338	352	370	364	402	272	267	301	244
45—55	288	228	207	213	173	165	139	126	131	109
55 up	195	126	115	100	96	90	71	65	65	47
	2,185	1,743	1,545	1,796	1,639	2,044	1,574	1,482	1,592	1,435

MALE AND FEMALE INCIDENCE AND MORTALITY FROM PULMONARY TUBERCULOSIS.

	Males.				Females.			
	Cases.	Rate per 1,000	Deaths.	Rate per 1,000	Cases.	Rate per 1,000	Deaths.	Rate per 1,000
0—15 ...	418	3·32	26	0·21	426	2·74	33	0·21
15—25 ...	233	3·48	75	1·12	256	2·60	105	1·07
25—35 ...	355	5·39	143	2·17	353	3·81	107	1·16
35—45 ...	364	6·80	212	3·95	244	3·45	111	1·58
45—55 ...	173	4·87	145	4·08	109	2·29	75	1·58
55—65 ...	76	3·54	74	3·45	38	1·27	30	1·00
Over 65 ...	20	1·44	27	1·94	9	0·37	6	0·25
All ages...	1,639	4·27	702	1·83	1,435	2·76	467	0·90

In considering these and other figures relating to age groups, allowance needs to be made for the fact that a large number of healthy men of military age have been taken away from the city. The rates for males apply therefore to a less healthy population than usual.

DEATH-RATES FROM TUBERCULOSIS IN GROUPS OF WARDS.

	Population.	Death-Rate per 1,000.
Central Wards	227,840	1·89
Middle Ring	368,034	1·21
Outer Ring	290,429	0·86

From the above tables one can undoubtedly say that *while the new cases are apparently becoming fewer in number, the deaths have remained without any evident decrease during the past six years.* But for the work of searching out the cases in contacts, and thereby bringing in large numbers of children, the notifications would have shown a much larger reduction.

It may be some years yet before a decided drop in the death-rate from Pulmonary Tuberculosis is noticed.

The compulsory notification of Tuberculosis has increased the mortality ascribed to it, because it is now difficult to omit the word "Tuberculosis" from the death certificate of any case which had been previously notified under that heading.

Compulsory notification of all cases of Tuberculosis commenced in 1913, when there were 4,229 cases notified. These have been kept under observation as far as possible by the staff of Tuberculosis Visitors, and the following statement indicates what the result of the disease and of its treatment had been up to the end of 1917, that is, from four to five years after notification:—

Total cases notified, 1913	4,229	
Dead (mostly from Tuberculosis)	1,251	=30%
	(16 killed on active service.)	
In full earning capacity	1,660	=39%
Lost sight of by removal or gone abroad ...	734	=17%
Still ill when last visited	300	= 7%
Omitted (wrong diagnosis, duplicates, etc.) ...	59	
Cases not visited	94	
Cases never found (in lodging houses, wrong addresses)	131	

B.—Non-Pulmonary Tuberculosis.

As will be seen by the table on page 20, the cases coming under this group are mainly children.

The notified cases and mortality from non-pulmonary tuberculosis are declining year by year in a satisfactory manner. This is shown in the following table:—

Non-Pulmonary Tuberculosis.

	No. of Deaths.	Death-rate in Birmingham.	Death-rate in England and Wales.
1901 ...	395	·52	·54
1902 ...	285	·37	·51
1903 ...	370	·48	·54
1904 ...	351	·45	·54
1905 ...	322	·41	·49
1906 ...	295	·37	·50
1907 ...	343	·43	·47
1908 ...	287	·35	·47
1909 ...	248	·30	·45
1910 ...	270	·32	·42
1911 ...	272	·32	·38
1912 ...	204	·24	·33
1913 ...	300	·34	·34
1914 ...	234	·27	·32
1915 ...	236	·27	·35
1916 ...	217	·24	·35
1917 ...	236	·26	—

Varieties of Non-Pulmonary Tuberculosis.

	Cases notified in 1917.	Deaths not notified as cases.	Total Deaths.
Tubercular Meningitis	50	47	98
Abdominal Tuberculosis	87	27	60
Tuberculosis of Spine...	10	11	15
Tuberculosis of Joints	24	4	8
Tuberculosis of other organs, mostly glands	276	11	12
Disseminated Tuberculosis	22	13	43

It will be noted that in the last seventeen years the decrease in the death-rate is fifty per cent.

This is very satisfactory, as it probably indicates that the infecting material from adults is doing less damage. It is only to a very limited extent due to improved methods of treatment.

There is indeed much yet wanted in the way of open-air treatment in Birmingham for the group of delicate children who are later specially liable to tuberculosis, and for those definitely affected. It is probably not too much to suggest that each day school should have two open-air class-rooms, with the necessary adjuncts for these children. Then, in addition, simple hospital accommodation is needed for the children in a sunny country district where all bone cases that cannot be treated at "The Woodlands," together with those suffering from abdominal tuberculosis and tubercular glands, may be sent for treatment and "fresh air."

Tuberculosis Visitors' Work.

Primary visits to homes of patients	3,627
Patients advised to get separate bed	1,212
,, ,, use separate room	277
,, ,, keep windows open	141
Periodical revisits	11,443
Special revisits	6,731
Total visits and revisits	21,801
Patients recommended for extra nourishment, clothing or bedding	152
Defective conditions reported to Sanitary Inspectors	671

Notified Cases of Tuberculosis, 1917.

	PULMONARY.			MENINGITIS.			ABDOMINAL.			SPINE.			JOINTS.			OTHER ORGANS.			DISSEMINATED.			TOTAL.		
	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total
Under 1 year ...	5	2	7	6	2	8	10	8	18	—	—	—	—	—	—	1	1	2	1	1	2	23	14	37
1 and under 2 ...	7	2	9	7	7	14	4	8	12	—	—	—	—	—	—	—	3	3	—	1	1	18	21	39
2 „ 3 ...	9	3	12	5	1	6	6	6	12	—	—	—	—	—	—	8	5	13	1	—	1	29	15	44
3 „ 4 ...	7	5	12	2	1	3	7	3	10	—	—	—	—	—	—	8	6	14	1	—	1	25	15	40
4 „ 5 ...	11	15	26	3	2	5	3	2	5	1	1	2	1	—	1	4	2	6	—	—	—	23	22	45
5 „ 10 ...	206	185	391	5	3	8	10	5	15	2	—	2	5	2	7	47	51	98	5	3	8	280	249	529
10 „ 15 ...	173	214	387	1	2	3	3	4	7	1	1	2	1	2	3	32	34	66	1	1	2	212	258	470
15 „ 20 ...	116	106	222	—	—	—	1	1	2	—	—	—	4	1	5	1	17	18	3	—	3	125	125	250
20 „ 25 ...	117	150	267	1	1	2	—	1	1	1	—	1	—	3	3	3	17	20	—	1	1	122	173	295
25 „ 35 ...	355	353	708	—	1	1	1	2	3	—	1	1	—	—	—	4	13	17	—	—	—	360	370	730
35 „ 45 ...	364	244	608	—	—	—	1	—	1	—	1	1	2	—	2	3	1	4	—	—	—	370	246	616
45 „ 55 ...	173	109	282	—	—	—	—	—	—	—	1	1	2	—	2	3	4	7	1	—	1	179	114	293
55 „ 65 ...	76	38	114	—	—	—	—	—	—	—	—	—	1	—	1	—	3	3	1	—	1	78	41	119
Over 65	20	9	29	—	—	—	1	—	1	—	—	—	—	—	—	4	1	5	—	1	1	25	11	36
All Ages ...	1639	1435	3074	30	20	50	47	40	87	5	5	10	16	8	24	118	158	276	14	8	22	1869	1674	3543

REPORT ON THE TREATMENT OF TUBERCULOSIS.

(By Dr. G. B. Dixon, Chief Tuberculosis Officer.)

A large proportion of the treatment of pulmonary tuberculosis in Birmingham is undertaken in institutions under the control of the Public Health Department, by the General Hospitals, and by institutions working in conjunction with, and in some instances subsidised by, the Municipal Authority; included amongst the latter are the Romsley Hill Sanatorium, with 140 beds, 120 of which are reserved for patients sent in by the Public Health Department; and the special department of the General Dispensary in Great Charles Street.

The doctors on the panel of the Local Insurance Committee and private practitioners also treat a number of tuberculous persons.

The institutions engaged in the treatment of pulmonary tuberculosis are:—

The Anti-Tuberculosis Centre, 44*a* Broad Street (Municipal), the medical staff of which is: Dr. G. B. Dixon, Chief Tuberculosis Officer, Dr. S. H. Stewart, Dr. W. B. Martin, Dr. E. Glover and Dr. A. G. Campbell, Tuberculosis Officers. With the exception of Dr. Glover, who is also Medical Superintendent of Salterley Grange, and Dr. A. G. Campbell, Medical Superintendent of West Heath, these doctors constitute the staff of the Yardley Road Sanatorium. In addition, Dr. Watts-Clarke gives part-time assistance in the evening treatment. Dentist, Mr. C. W. Randall; Sister-in-Charge, Miss E. M. Woodall.

The Yardley Road Sanatorium, 287 *beds* (*Municipal*), *situated within the City boundary*. Medical Superintendent, Dr. G. B. Dixon; Resident Medical Officers, Dr. S. H. Stewart and Dr. W. B. Martin; Matron, Miss Moore.

The Salterley Grange Sanatorium, near Cheltenham (*Municipal*), 97 *beds*. Medical Superintendent, Dr. E. Glover; Matron, Miss Mason.

The West Heath Hospital (*Municipal*) has 80 beds for the treatment of acute cases of pulmonary tuberculosis. Medical Superintendent, Dr. A. G. Campbell; Matron, Miss Bywater.

Witton Hospital (*Municipal*) has accommodation for 70 female patients who are suffering from pulmonary tuberculosis. Temporary Visiting Medical Superintendent, Dr. P. Campbell; Matron, Miss Thornton.

The Romsley Hill Sanatorium (*Birmingham Hospital Saturday Fund*), 140 beds, of which 120 are rented by the Public Health Committee, which are filled, when possible, by patients subscribing to the Hospital Saturday Fund. Medical Superintendent, Dr. Moorhead (temporary); Matron, Miss Murray.

The Special Department of the General Dispensary, Great Charles Street, is an out-patient department for the treatment of tuberculosis; it is a unit for the treatment of tuberculosis in the Municipal Scheme, and receives a subsidy from the City Council. Temporary Medical Superintendent, Dr. McGowan.

During the year 24 beds for female children were added to the women's pavilion at Yardley Road Sanatorium, and the beds in the pavilion set aside for the treatment of children are now utilized entirely for the treatment of male children.

The patients admitted by the Guardians to the men's pavilions at Yardley Road Sanatorium and to the Witton Hospital, which is reserved entirely for female Poor Law patients, are necessarily sent in without any medical selection being made; as a result a certain number are admitted in a dying condition, and others are bed-ridden from the date of admission. I refer to this because the mortality rate of the Poor-Law cases is very much higher than that of the other patients.

The Anti-Tuberculosis Centre.

All cases of pulmonary tuberculosis (notified to the Medical Officer of Health for the City) who desire treatment are examined at the Anti-Tuberculosis Centre, Broad Street, and a suitable form of treatment is decided upon; at the same time useful advice and instructions are given on the subjects of dietary, ventilation, sputum collection, disinfection, and occupations, etc.

It is interesting to note here that there has been greater co-operation between the Municipal Tuberculosis scheme and the Tuberculosis department of the General Dispensary than in any previous year. In 1916 the Medical Officer of the General Dispensary's Special Department recommended 31 patients for treatment in the Municipal Sanatoria, whilst in 1917, during the period March to December, no less than 92 patients were referred for treatment to the Anti-Tuberculosis Centre from the same source.

The Anti-Tuberculosis Centre is open daily, including the evenings, on five days weekly, and on Saturdays for half a day. New patients are examined and old patients are re-examined by appointment during the mornings and the afternoons.

Treatment is given during the evenings to those who are working, and in the afternoons to children and those women and men who are not working.

On their return from the Sanatoria patients are again seen at the Centre, where many continue to attend as out-patients; some, however, return to their private doctors, and others receive

domiciliary treatment from their panel doctors. The patients attending the Centre are examined from time to time, and those who have been patients in the past are re-examined after varying intervals of time. Unavoidable shortage of doctors has again, unfortunately, resulted in the curtailment to a certain extent of this part of our work.

From this description it will be realised that the Anti-Tuberculosis Centre fulfils the triple role of (1) a sorting house; (2) an information bureau; and (3) a Centre for treatment.

As in previous years, the Sanatoria have received the majority of our patients for their initial period of treatment. Without Sanatoria many patients would not only remain untreated, but would undoubtedly succumb more quickly to their disease than at present. By means of the Sanatoria and the nursing and constant medical supervision which they provide, it is possible to tide over a phase of acute activity in the disease until quiescence or diminished activity permit of the case being given dispensary or domiciliary treatment.

In connection with the treatment of pulmonary tuberculosis, it is frequently asked if the disease is curable? It has been said that it is curable in all its stages, and that it is the most curable of all chronic diseases, but to this the following reservations must be added, viz.:—That (1) the patients must be treated from the onset of the disease; (2) the treatment must be energetic; and (3) treatment must last for a long time; even when the disease becomes arrested the mode of life must be carefully ordered. Of these reservations the third is undoubtedly the most important one, and cannot be sufficiently emphasized. Too often we hear the opinion expressed that two or three months spent in a Sanatorium will put the patient all right or will cure him. Such an impression is harmful, and should seldom be entertained when actual tuberculosis is present. The treatment or hygienic and other conditions necessary to bring about the arrest of tuberculosis and maintain it in a condition of quiescence, require to be spread over a long period of years, and cannot possibly be measured by weeks or months.

Unless a tuberculosis patient can be made to realise this and to act accordingly, disillusion will surely occur. With the intention of providing a prolonged course of treatment to those whose disease is capable of arrest, and at the same time offering training in some fresh occupation at which a livelihood can be earned under hygienic conditions, "Farm Colonies" and "Labour Colonies" are now being organised and advocated.

Such colonies must be founded upon a broader basis than those of the past, which have been of limited utility where the majority of patients were drawn from a rural population, and have been even less useful for patients coming from an urban district.

Agriculture, arboriculture, and horticulture, even temporarily, as therapeutic measures do not always appeal to the city dweller, except the wages attached are attractive or unless dire necessity compels the adoption of a new vocation. Some of this reluctance might be overcome if gardening as an occupation for patients was more freely utilised.

The growing and drying of medicinal herbs and of plants for seed purposes affords a useful and interesting occupation which can be undertaken by either sex, and has been adopted with some success at the Yardley Road Sanatorium.

Such work may be the means of providing a useful, healthy, and perhaps remunerative hobby for tuberculous patients after leaving the Sanatorium.

Complete change of work is not to be regarded as an essential in the majority of cases of tuberculosis, unless the occupation is dangerous from the health point of view. It is better policy, economically and otherwise, to advise patients to follow their own occupations under reasonably hygienic conditions than to persuade them to learn another trade for which they may be ill-adapted, physically and temperamentally. To facilitate this, well-lighted and efficiently-ventilated factories which have been built for the production of war material might eventually be acquired, and so adapted that the tuberculous could work in them without disadvantage, and if, after Sanatorium treatment, the convalescent consumptive were allowed to work here for a few hours daily, gradually increasing his effort until full time was being worked, the hiatus between no work at all plus inadequate sick pay and immediate full-time work, with its sudden and dangerous strain, could be satisfactorily bridged.

Number of Patients Examined during the Year.

During the calendar year, which differs slightly from the registration year, the total number of attendances for diagnosis and treatment at the Centre was 40,590, which is a decrease of 4,529 compared with the preceding year.

The total attendances for treatment alone was 32,546, a decrease of 5,705.

The total number of examinations was 8,044, an increase of 1,176 over the preceding year.

We examined 2,238 new (notified) cases during the year, 386 "suspect" (or un-notified) cases, and there were 3,349 re-examinations of other patients.

The new cases examined, *i.e.*, the notified and contacts, the total of which was 2,624, received no less than 4,695 examinations before the required form of treatment was decided upon.

It was necessary to examine 248 notified patients in their own homes, as they were too ill to attend the Centre.

The following table shows the form of treatment primarily recommended for the new cases examined during the year:—

	Notified Patients.	Contacts.
Number recommended for Sanatoria and Hospital	1,436	223
Number recommended for Dispensary	136	27
Number recommended for Domiciliary treatment	254	3
Treatment not required	412	133
Total completed examinations	2,238	386

The recommendations of the 3,349 old patients who were re-examined during the year were :—

Number recommended for Sanatoria	342
Number recommended for Dispensary	749
Number recommended for Domiciliary	504
No further treatment required	1,754
Total	3,349

The above re-examinations include those who are examined immediately after leaving the Sanatoria, the majority of whom are recommended for dispensary or domiciliary treatment.

It may be well to state here that the "Sanatorium Benefit" of the National Health Insurance Act includes Sanatorium, Hospital, Dispensary and Domiciliary treatment.

From the above tables it will be seen that 2,001 were recommended for residential treatment in the Sanatoria and Hospital; 241 of them refused the treatment advised.

The number of "suspect" cases examined cannot be considered as satisfactory when compared with the number of notified cases examined; the smallness of the number is due entirely to the curtailment of the medical staff.

It is interesting to note that of the 386 "suspects," 253, or 65 per cent., were found to be suffering from tuberculosis and required treatment. This percentage at first sight appears to be a large one, but it should be noted that the cases are "suspects" in contradistinction to "contacts" only, and that they represent the findings in cases which have been carefully serted out by their own doctors before coming to us.

749 men were examined at the request of the Military Authorities. In about 50 per cent. of this number more than one examination was necessary in order to arrive at a correct decision.

This arrangement also caused an increase in the laboratory work at the Centre, as sputum had to be examined in every case when present, and in many instances more than one examination was required. In some instances other clinical specimens required examination.

Patients Treated During the Year.

During the year 1917 2,276 were on the register at the Centre, as having received out-patient treatment. Of these 1,009 were transferred from the register of the previous year, not having completed treatment. During 1917 patients to the number of 812 were transferred from the Sanatoria to the Centre for out-patient treatment, and 265 persons after examination were given dispensary treatment as their initial form of treatment, and 190 "return" cases were placed on dispensary treatment after re-examination.

The period of treatment is in most cases a prolonged one, and is seldom less than 10 months, and frequently much longer. It is obvious, therefore, that many who are included in the total above commenced treatment in the preceding year; furthermore, a large number of those who came under our care in 1917 did not complete their treatment in the period covered by the report, and are continuing it in the current year.

Of the 2,276 patients 748 were males, 719 were females, and 809 were children of 14 years and under.

Of the male patients treated 682 were insured persons, and there were 359 insured persons amongst the females.

The total number of patients receiving treatment at the Centre during 1917 shows an increase of 51, as compared with those treated during 1916.

During the year 83 of the male patients were transferred to domiciliary treatment, 43 either could not be traced or were receiving treatment elsewhere, and 15 died. Of the remaining 607 227 completed a satisfactory course of treatment, and 380 continued their treatment into 1918.

Female patients numbering 64 were transferred to domiciliary treatment, 31 either could not be traced or were receiving treatment elsewhere, or left the city, and 3 died. Of the remaining 621 261 completed a satisfactory course of treatment, and 360 continued their treatment into 1918.

Of the children 54 were receiving treatment at home, and 40 discontinued treatment. Of the remaining 715 217 completed a satisfactory course of treatment, and 498 continued their treatment into 1918.

CLASSIFICATION OF ALL OUT-PATIENTS WHO RECEIVED TREATMENT AT THE CENTRE.

	Classification according to Stage of Disease.		
	Stadium I.	Stadium II.	Stadium III.
Males	191	395	162
Females	248	330	141
Children	451	253	105

RESULT OF SPUTUM EXAMINATION—MALES.

	Stadium I.	Stadium II.	Stadium III.
Tubercle bacilli present ...	63 = 32·9%	153 = 38·7%	114 = 70·37%
Tubercle bacilli not found ...	104	194	40
No sputum	24	48	8
Totals ...	191	395	162

RESULT OF SPUTUM EXAMINATION—FEMALES.

	Stadium I.	Stadium II.	Stadium III.
Tubercle bacilli present ...	35 = 14·1%	79 = 23·9%	59 = 41·8%
Tubercle bacilli not found ...	114	147	54
No sputum	99	104	28
Totals ...	248	330	141

RESULT OF SPUTUM EXAMINATION—CHILDREN.

	Stadium I.	Stadium II.	Stadium III.
Tubercle bacilli present ...	5 = 1·1%	10 = 3·9%	3 = 2·8%
Tubercle bacilli not found ...	90	56	32
No sputum	356	187	70
Totals ...	451	253	105

The classification used in the report is that of Turban-Gerhardt, which states that :—

Stadium I. comprises those with disease of slight severity, limited to small areas on either side, which in the case of infection of both apices does not extend below the spine of the scapula or the clavicle, or in the case of affection of the apex of one lung does not extend below the second rib in front.

Stadium II. comprises those with disease of slight severity more extensive than Stage I., but affecting at most the whole of one lobe, or severe disease extending at most to the half of one lobe.

Stadium III.—All cases of greater severity than Group II., and all those with considerable cavities.

Stadium IV. includes those cases where no disease can be found, or where the lesion is definitely proved to be obsolete.

WORKING CAPACITY.

In the following tables are given the working capacity, before and after treatment at the Centre, of all cases discharged from out-patient treatment during the year. Those still on the register and continuing treatment during the year 1918 are not included in these tables :—

WORKING CAPACITY—MEN.

Stage I.	Before Treatment.	After Treatment.
Unimpaired	18 = 18·5%	75 = 77·3%
Impaired	72 = 74·3%	22 = 22·6%
Totally incapacitated	7 = 7·1%	—
Stage II.	**Before Treatment.**	**After Treatment.**
Unimpaired	18 = 9·2%	120 = 61·9%
Impaired	160 = 82·4%	71 = 36·5%
Totally incapacitated	16 = 8·2%	3 = 1·5%
Stage III.	**Before Treatment.**	**After Treatment.**
Unimpaired	3 = 3·8%	39 = 50·6%
Impaired	53 = 68·8%	26 = 33·7%
Totally incapacitated	21 = 27·2%	12 = 15·5%

Working Capacity—Women.

Stage I.	Before Treatment.	After Treatment.
Unimpaired	20 = 14·3%	125 = 89·9%
Impaired	112 = 80·5%	14 = 10·07%
Totally incapacitated	7 = 5·03%	—

Stage II.	Before Treatment.	After Treatment.
Unimpaired	10 = 6·7%	113 = 75·8%
Impaired	130 = 87·2%	32 = 21·4%
Totally incapacitated	9 = 6·04%	4 = 2·6%

Stage III.	Before Treatment.	After Treatment.
Unimpaired	4 = 5·6%	37 = 52·1%
Impaired	38 = 53·5%	24 = 33·8%
Totally incapacitated	29 = 40·8%	10 = 14·08%

Working Capacity—Children.

Stage I.	Before Treatment.	After Treatment.
Unimpaired	47 = 24·1%	148 = 75·8%
Impaired	139 = 71·2%	47 = 24·1%
Totally incapacitated	9 = 4·6%	—

Stage II.	Before Treatment.	After Treatment.
Unimpaired	3 = 3·5%	73 = 86·9%
Impaired	78 = 92·8%	9 = 10·7%
Totally incapacitated	3 = 3·5%	2 = 2·3%

Stage III.	Before Treatment.	After Treatment.
Unimpaired	2 = 6·2%	16 = 50%
Impaired	17 = 53·1%	15 = 46·8%
Totally incapacitated	13 = 40·6%	1 = 3·1%

Weight, Working Capacity, Sputum and Condition of Disease in Completed Cases.

In many of these finished cases the treatment has not been completed in accordance with the recommendation of the Tuberculosis Officers. Too often the period of treatment has been greatly curtailed, or the attendances have been too irregular in character to permit of a specified course of treatment being carried out.

The cause of this in many cases is due to the present-day industrial conditions, when patients may be working alternately day and night. In some instances, however, the patients' indifference seems to be the only explanation.

In many of the cases quoted in the following tables the smallness of the doses of tuberculin given, when compared with the length of time during which the patient underwent treatment, is accounted for by the irregularity of attendance.

In many instances, too, patients notify us that they will not be attending after a certain date, and, notwithstanding the fact that treatment may be far from complete, a final examination has to be made, and the patient returned as a "completed" case. Others, unfortunately, will not come for a final examination, which makes it very difficult to classify the case, and it has to be returned as being "lost sight of," etc.

Of the 2,276 out-patients some 705 completed a course of treatment during the year at the Centre. This number includes 227 males, 261 females and 217 children.

Of the 227 males 103 had tubercle bacilli in the sputum, of the 261 females 60 had tubercle bacilli in the sputum, and in the sputa of 6 of the 217 children they were also demonstrated.

For the purposes of tabulation and classification these completed cases have been broadly divided into two classes, those with and those without tubercle bacilli in the sputum.

Detailed tables of the 169 cases in whose sputum tubercle bacilli were found have been drawn up. In these it is shown whether the patient is a "new" or "return" case. The age, and stage of the disease are noted, the sputum conditions before and after treatment, the loss or gain in weight, increase or diminution of capacity for work, the time spent at the Sanatorium and Dispensary, the tuberculin given and the conditions of the disease, as to activity or quiescence are also tabulated.

Return or New Case.	Age.	Stage.	Sputum. Before Treatment.	Sputum. After Treatment.	Weight after Treatment.	Working Capacity after Treatment.	Time in Sanatorium.	Time in Dispensary.	Preparation of Tuberculin given and maximum dose.	Conditions of Disease after Treatment. Active or Quiescent. A.	Q.
New ...	12	II	O	T.B. +	+21lbs.	+	1 mth.	12 mts.	Nil	1	–
New ...	8	II	T.B. +	O	+ 9 „	+	3 mts.	10 „	P.T.O. ·007	1	–
New ...	12	II	T.B. +	O	+17 „	+	3 „	2 „	P.T.O. ·002	–	1
Return ...	12	I	T.B. +	T.B. –	+13 „	+	2 „	6 „	Nil	–	1
Return ...	13	I	T.B. +	T.B. –	+26 „	+	2 „	35 „	Nil	1	–
Return ...	10	I	T.B. +	T.B. –	+16 „	+	1½ „	24 „	Nil	–	1
New ...	33	II	T.B. +	T.B. –	+1¾ „	+	1½ „	8 „	P.T.O. ·4	–	–
									P.T. ·65	1	–
Return ...	29	III	T.B. +	T.B. –	+2 „	+	2 „	18 „	B.E. ·85	–	1
Return ...	30	II	T.B. +	T.B. –	–2 „	+	2½ „	12 „	Nil	1	–
Return ...	26	II	T.B. +	O	+1¼ „	=	3 „	25 „	P.T.O. ·5	–	–
									P.T. ·8	–	–
									B.E. ·5	1	–
Return ...	19	III	T.B. +	O	+2½ „	+	6 „	18 „	B.E. ·006	1	–
New ...	46	II	T.B. +	T.B. –	+4 „	+	1 „	24 „	P.T.O. ·4	–	–
									P.T. ·35	–	1
Return ...	23	III	T.B. –	T.B. +	+1 „	+	5 „	18 „	B.E. ·5	–	–
									P.T.O. ·7	–	–
									P.T. ·6	–	–
									A.F. ·9	1	–
New ...	20	II	T.B. +	O	+10 „	+	3 „	7 „	P.T.O. ·5	–	–
									P.T. 1cc.	–	1
New ...	37	II	T.B. +	T.B. –	+2 „	+	4 „	12 „	Nil	1	–
New ...	21	II	T.B. +	T.B. –	+7 „	+	2 „	7 „	P.T.O. ·002	–	1
Return ...	42	III	T.B. +	T.B. –	–6 „	+	5 „	24 „	P.T.O. ·5	–	–
									P.T. 1cc.	–	–
									A.F. 1cc.	1	–
Return ...	34	III	T.B. +	T.B. –	–7 „	+	3 „	20 „	P.T.O. ·45	–	–
									P.T. ·2	1	–
Return ...	20	I	T.B. +	T.B. –	+5 „	+	1 „	28 „	B.E. ·009	–	1
New ...	35	II	T.B. +	T.B. –	+3 „	+	2 „	11 „	P.T.O. ·55	–	–
									P.T. 1cc.	–	1
New ...	25	III	T.B. +	T.B. +	–¾ „	+	2 „	17 „	Nil	1	–
New ...	20	I	T.B. +	O	+14 „	+	3 „	10 „	B.E. 1cc.	–	1
Return ...	32	II	T.B. –	T.B. +	+3 „	+	2 „	17 „	P.T.O. ·5	–	–
									P.T. ·25	1	–
Return ...	17	II	T.B. –	T.B. +	+19 „	+	2 „	16 „	P.T.O. ·5	–	–
									P.T. ·7	1	–
New ...	23	I	T.B. +	O	+16 „	+	2 „	6 „	P.T.O. ·5	–	–
									P.T. 1cc.	–	1
New ...	35	II	T.B. +	T.B. –	–4 „	–	5 „	9 „	Nil	1	–
Return ...	40	II	T.B. +	T.B. –	–7 „	+	1½ „	24 „	P.T.O. ·5	–	–
									P.T. ·6	–	1
Return ...	31	III	T.B. +	T.B. –	–9 „	+	Nil	28 „	Nil	1	–
Return ...	31	III	T.B. +	T.B. +	+4 „	+	2 mts.	36 „	B.E. ·3	–	–
									O.T. ·6	1	–
Return ...	39	I	T.B. –	T.B. +	+6½ „	+	Nil	24 „	P.T.O. ·5	–	–
									P.T. ·25	1	–
New ...	24	I	T.B. +	O	+½ „	+	3 mts.	21 „	P.T.O. ·5	–	–
									P.T. ·05	–	1
Return ...	34	II	T.B. +	O	+9¼ „	+	2 „	23 „	B.E. ·045	–	–
									P.T.O. ·075	1	–
New ...	26	III	T.B. +	T.B. +	+8¾ „	+	4 „	18 „	P.T.O. ·5	1	–
New ...	17	II	T.B. +	O	+17 „	+	2 „	20 „	P.T.O. ·5	–	–
									P.T. ·7	–	1
New ...	15	II	T.B. +	T.B. –	+4¼ „	+	5 „	21 „	P.T. ·9	–	1
New ...	37	II	T.B. +	T.B. –	+5 „	+	1 „	18 „	B.E. ·0085	1	–
New ...	22	I	T.B. +	T.B. –	–5 „	+	2 „	18 „	P.T.O. ·5	–	1
New ...	34	III	T.B. –	T.B. +	+1 „	+	1½ „	2 „	Nil	1	–
New ...	34	II	T.B. –	T.B. +	+7 „	=	1 „	2 „	Nil	1	–

Return or New Case.	Age.	Stage.	Sputum. Before Treatment.	Sputum. After Treatment.	Weight after Treatment.	Working Capacity after Treatment.	Time in Sanatorium	Time in Dispensary.	Preparation of Tuberculin given and maximum dose.	Conditions of Disease after Treatment. Active or Quiescent. A.	Q.
New ...	17	II	T.B. +	O	+1½ ,,	+	3 mts.	10 mts.	P.T.O. ·006	1	-
New ...	21	III	T.B. +	T.B. +	+11½ ,,	+	3 ,,	6 ,,	P.T.O. ·45	1	-
New ...	26	II	T.B. +	T.B. +	+2 ,,	=	4 ,,	4 ,,	Nil	1	-
New ...	22	I	T.B. +	O	+5½ ,,	=	5 ,,	21 ,,	P.T.O. ·5	-	-
									P.T. ·7	-	1
New ...	16	III	T.B. +	T.B. +	+5 ,,	+	3 ,,	9 ,,	P.T.O. ·003	1	-
New ...	42	III	T.B. +	T.B. +	−6 ,,	+	2 ,,	20 ,,	Nil	1	-
Return ...	28	I	T.B. −	T.B. +	+1¾ ,,	=	1 ,,	16 ,,	B.E. ·2	-	-
									A.F. ·9	1	-
New ...	24	II	T.B. −	T.B. +	+2 ,,	+	3 ,,	15 ,,	Nil	1	-
New ...	37	II	T.B. +	T.B. +	−10 ,,	=	2 ,,	12 ,,	Nil	1	-
Return ...	26	I	T.B. +	T.B. +	+6 ,,	+	3 ,,	24 ,,	P.T.O. ·5	-	-
									P.T. ·03	1	-
Return ...	32	II	O	T.B. +	+2 ,,	=	2½ ,,	2½ ,,	P.T.O. ·00015	1	-
Return ...	42	II	T.B. +	T.B. +	+1½ ,,	+	6 ,,	18 ,,	P.T.O. ·5	-	-
									P.T. 1cc.	1	-
Return ...	28	II	T.B. +	O	+2½ ,,	+	3 ,,	17 ,,	P.T.O. ·0045	1	-
Return ...	52	II	T.B. −	T.B. +	−2¾ ,,	+	2 ,,	14 ,,	Nil	1	-
Return ...	24	III	T.B. +	O	+4 ,,	+	5 ,,	30 ,,	P.T.O. ·5	-	-
									P.T. ·008	-	1
New ...	23	II	T.B. +	T.B. −	+19 ,,	+	6 ,,	6 ,,	P.T.O. ·5	-	1
New ...	36	II	T.B. +	T.B. −	+5 ,,	+	3 ,,	5 ,,	P.T. ·45	1	-
New ...	30	III	T.B. +	T.B. −	+2¾ ,,	+	2 ,,	12 ,,	B.E. ·01	1	-
Return ...	26	I	T.B. +	O	−10 ,,	+	5 ,,	13 ,,	P.T.O. ·5	-	-
									P.T. 1cc.	-	-
									O.T. 1cc.	-	1
Return ...	44	I	T.B. +	T.B. −	−5 ,,	=	4 ,,	6 ,,	P.T.O. ·001	-	-
									B.E. ·04	-	1
New ...	17	I	T.B. +	T.B. +	+14 ,,	+	4 ,,	24 ,,	B.E. ·75	1	-
Return ...	33	I	T.B. +	T.B. −	−1 ,,	+	Nil	18 ,,	P.T.O. ·5	-	-
									P.T. 1cc.	-	1
New ...	49	II	T.B. +	O	+13 ,,	=	6 mts.	12 ,,	P.T.O. ·5	-	-
									P.T. 1cc.	-	1
New ...	24	I	T.B. +	T.B. −	+5 ,,	+	3 ,,	10 ,,	P.T.O. ·04	-	1
New ...	35	II	T.B. −	T.B. +	+6¼ ,,	=	3 ,,	4 ,,	Nil	1	-
New ...	23	III	T.B. +	T.B. −	+12 ,,	+	2 ,,	2 ,,	P.T.O. ·001	-	1
Return ...	25	II	T.B. +	T.B. +	−8 ,,	+	7 ,,	36 ,,	P.T.O. ·5	-	-
									P.T. ·4	1	-
New ...	39	III	T.B. +	T.B. −	+5 ,,	+	3 ,,	14 ,,	B.E. ·4	1	-
New ...	34	III	T.B. +	O	+1 ,,	+	2 ,,	8 ,,	B.E. ·7	-	1
Return ...	28	III	T.B. +	T.B. +	+2 ,,	+	5 ,,	10 ,,	B.E. 1cc.	1	-
New ...	38	III	T.B. +	T.B. +	+4 ,,	+	4 ,,	9 ,,	B.E. ·0085	1	-
Return ...	44	II	T.B. +	T.B. +	−8 ,,	=	3 ,,	26 ,,	P.T.O. ·5	-	-
									P.T. ·06	1	-
New ...	40	II	T.B. +	O	+3 ,,	=	2 ,,	12 ,,	Nil	1	-
New ...	30	II	T.B. +	T.B. −	+8 ,,	+	2 ,,	9 ,,	B.E. ·8	1	-
New ...	26	II	T.B. +	T.B. −	+4 ,,	+	1½ ,,	7 ,,	Nil	-	1
New ...	40	I	T.B. +	T.B. −	−14 ,,	+	2 ,,	11 ,,	P.T.O. ·9	1	-
New ...	16	II	T.B. −	T.B. +	+10 ,,	=	5 ,,	10 ,,	B.E. ·9	1	-
New ...	40	II	T.B. −	T.B. +	+1 ,,	+	3 ,,	8 ,,	P.T.O. ·05	1	-
New ...	19	I	T.B. +	T.B. +	+1¾ ,,	+	Nil	24 ,,	B.E. ·35	1	-
New ...	30	I	T.B. +	O	−2 ,,	=	,,	8 ,,	Nil	-	1
Return ...	17	I	T.B. +	T.B. −	+7 ,,	+	4 mts.	19 ,,	P.T.O. ·5	-	-
									P.T. 1cc.	-	1
Return ...	30	II	T.B. +	T.B. −	+2 ,,	+	3 ,,	13 ,,	B.E. ·8	-	1
New ...	27	II	T.B. +	T.B. −	+1 ,,	+	1 ,,	12 ,,	P.T.O. ·6	-	-
									P.T. ·6	-	1
Return ...	42	III	T.B. +	T.B. −	+6 ,,	+	7 ,,	24 ,,	P.T.O. ·25	-	-
									B.E. ·5	-	1
New ...	37	III	T.B. +	T.B. −	+2 ,,	+	2 ,,	14 ,,	B.E. ·95	-	1

Return or New Case.	Age.	Stage.	Sputum. Before Treatment.	Sputum. After Treatment.	Weight after Treatment.	Working Capacity after Treatment.	Time in Sanatorium.	Time in Dispensary.	Preparation of Tuberculin given and maximum dose.	Conditions of Disease after Treatment. Active or Quiescent. A.	Q.
Return ...	34	II	T.B. +	T.B. −	+4¾ „	+	3 mts.	21 mts.	B.E. 1cc.	1	−
New ...	40	II	T.B. −	T.B. +	+1½ „	+	2 „	13 „	P.T.O. ·5	−	−
									P.T. ·35	1	−
Return ...	25	II	T.B. +	T.B. −	+5 „	+	5 „	14 „	B.E. ·6	−	1
Return ...	15	I	T.B. +	O	+42 „	+	1½ „	22 „	Nil	−	1
New ...	47	III	T.B. +	T.B. +	+3 „	+	2 „	12 „	Nil	1	−
Return ...	31	II	T.B. +	T.B. −	+6 „	+	2 „	20 „	P.T.O. ·5	−	−
									P.T. ·8	−	1
New ...	26	I	T.B. +	T.B. −	+14 „	+	2 „	6 „	P.T.O. ·5	−	−
									P.T. ·85	−	1
New ...	26	II	T.B. −	T.B. +	+1½ „	+	2 „	7 „	Nil	1	−
New ...	43	III	T.B. +	T.B. −	−3 „	+	2 „	15 „	B.E. ·3	1	−
New ...	34	II	T.B. +	T.B. −	+6 „	+	3 „	14 „	Nil	−	1
New ...	32	II	T.B. +	T.B. −	+1½ „	+	5 „	12 „	P.T.O. ·5	−	−
									P.T. ·35	−	1
Return ...	50	III	T.B. +	T.B. −	=	=	3 „	17 „	P.T.O. ·5	−	−
									P.T. ·08	1	−
Return ...	22	III	O	T.B. +	+3 lbs.	+	2 „	26 „	P.T.O. ·4	−	−
									P.T. ·15	1	−
Return ...	22	II	T.B. +	T.B. −	−1 „	+	4 „	15 „	P.T.O. ·5	−	−
									P.T. ·5	1	−
New ...	38	I	T.B. −	T.B. +	+14 „	+	1 „	8 „	P.T.O. ·00075	1	−
New ...	22	II	T.B. +	T.B. +	−9 „	+	2 „	18 „	B.E. ·2	1	−
Return ...	31	II	T.B. +	T.B. +	+14 „	=	4 „	15 „	P.T.O. ·5	−	−
									B.E. ·25	1	−
New ...	45	II	T.B. +	T.B. −	+6 „	+	3 „	12 „	P.T.O. ·0015	−	1
Return ...	29	I	T.B. +	T.B. −	−5 „	+	3 „	24 „	P.T.O. ·5	1	−
Return ...	41	I	T.B. +	T.B. −	+5 „	+	2 „	11 „	P.T. ·9	−	−
									A.F. ·8	−	1
New ...	22	II	T.B. +	T.B. −	+22 „	+	5 „	11 „	P.T.O. ·5	−	−
									P.T. ·06	−	1
Return ...	27	II	T.B. +	T.B. −	+1 „	−	3 „	16 „	P.T.O. ·5	−	−
									P.T. ·55	−	1
New ...	42	II	T.B. +	T.B. −	+9 „	+	2 „	16 „	B.E. ·25	−	1
New ...	35	II	T.B. +	T.B. −	+6 „	+	2 „	13 „	P.T.O. ·0005	−	1
New ...	23	II	T.B. +	T.B. −	+2½ „	+	6 „	6 „	P.T.O. ·5	−	−
									P.T. ·08	−	1
New ...	48	III	T.B. +	T.B. +	+16 „	+	2 „	2 „	Nil	1	−
New ...	50	III	T.B. −	T.B. +	+13 „	+	3 „	8 „	P.T.O. ·4	−	−
									P.T. ·9	1	−
New ...	26	I	T.B. +	T.B. −	+1½ „	+	3 „	3 „	P.T.O. ·0015	−	1
Return ...	33	II	T.B. +	T.B. −	+5 „	=	1½ „	18 „	P.T. ·8	−	−
									B.E. ·035	1	−
Return ...	36	I	T.B. −	T.B. +	+4 „	+	1½ „	17 „	B.E. ·04	−	−
									P.T. 1cc.	1	−
New ...	18	III	T.B. +	T.B. −	+9 „	+	2 „	5 „	P.T.O. ·0002	−	1
Return ...	35	II	T.B. +	T.B. −	+1 „	+	2 „	4 „	Nil	−	1
Return ...	44	II	T.B. +	T.B. +	+1¼ „	+	3 „	29 „	P.T.O. ·5	−	−
									P.T. 1cc.	−	−
									B.E. ·085	1	−
New ...	25	I	T.B. +	T.B. −	+5¼ „	+	9 „	12 „	P.T.O. ·55	−	1
Return ...	50	II	T.B. +	T.B. −	−¾ „	+	1 „	18 „	B.E. ·0004	1	−
Return ...	21	II	T.B. +	T.B. −	−1 „	+	7 „	16 „	B.E. ·06	−	1
New ...	44	II	T.B. +	T.B. −	−3 „	+	2 „	11 „	B.E. ·001	1	−
New ...	37	II	T.B. +	T.B. +	+1 „	+	3 „	18 „	P.T.O. ·5	−	−
									P.T. ·01	1	−
New ...	23	II	T.B. −	T.B. +	−8 „	+	Nil	16 „	Nil	1	−
New ...	35	III	T.B. +	T.B. +	−9 „	+	3 mts.	10 „	B.E. ·1	−	−
									P.T. ·06	1	−
New ...	45	III	T.B. +	T.B. +	=	−	4 „	29 „	B.E. ·005	1	−

Return or New Case.	Age.	Stage.	Sputum		Weight after Treatment.	Working Capacity after Treatment.	Time in Sanatorium	Time in Dispensary.	Preparation of Tuberculin given and maximum dose.	Conditions of Disease after Treatment. Active or Quiescent.	
			Before Treatment.	After Treatment.						A.	Q.
Return ...	36	I	T.B. +	T.B. +	−5 lbs.	−	3 mts.	36 mts.	Nil	1	−
New ...	35	II	T.B. −	T.B. +	+12 ,,	+	6 ,,	6 ,,	P.T.O. ·5	−	−
									P.T. ·55	1	−
New ...	25	II	T.B. +	T.B. −	+29 ,,	+	2 ,,	22 ,,	P.T.O. ·5	−	−
									P.T. 1cc.	−	1
New ...	22	II	T.B. +	T.B. −	+9 ,,	+	3 ,,	8 ,,	P.T. ·3	−	1
New ...	35	I	T.B. −	T.B. +	+8¼ ,,	=	2 ,,	3 ,,	Nil	1	−
Return ...	38	II	T.B. +	T.B. −	+22 ,,	+	2 ,,	21 ,,	Nil	−	1
New ...	32	II	T.B. +	T.B. −	+15 ,,	+	3 ,,	7 ,,	Nil	−	1
New ...	35	I	T.B. −	T.B. +	+9 ,,	+	3 ,,	3 ,,	P.T.O. ·6	−	−
									P.T. 1cc.	1	−
New ...	49	II	T.B. +	T.B. −	+12 ,,	+	2 ,,	4 ,,	P.T.O. ·5	−	−
									P.T. 1cc.	−	1
New ...	29	II	T.B. +	T.B. +	−6 ,,	+	3 ,,	8 ,,	P.T.O. ·02	1	−
New ...	31	I	T.B. −	T.B. +	−7 ,,	+	2 ,,	3 ,,	P.T.O. ·07	1	−
Return ...	34	II	T.B. +	T.B. −	+4 ,,	+	3 ,,	30 ,,	B.E. 1cc.	−	1
New ...	31	II	T.B. +	T.B. −	+1 ,,	+	2 ,,	9 ,,	Nil	−	1
New ...	21	II	T.B. +	T.B. +	−1 ,,	+	2 ,,	2 ,,	P.T.O. ·0004	1	−
New ...	39	II	T.B. +	O	+14 ,,	+	3 ,,	1 ,,	P.T.O. ·1	−	1
Return	31	III	T.B. +	T.B. −	+4 ,,	+	4 ,,	29 ,,	P.T.O. ·5	−	−
									P.T. 1cc.	−	−
									A.F. 1cc.	1	−
Return ...	31	I	T.B. +	T.B. −	−10 ,,	+	2 ,,	19 ,,	P.T.O. ·45	−	−
									P.T. ·3	1	−
New ...	33	II	T.B. +	T.B. −	−9 ,,	+	7 ,,	9 ,,	Nil	1	−
New ...	27	II	T.B. +	T.B. +	+2 ,,	+	2 ,,	12 ,,	Nil	1	−
Return ...	29	I	T.B. +	T.B. −	=	+	1½ ,,	15 ,,	P.T.O. ·45	−	−
									P.T. ·7	−	−
									B.E. ·02	−	1
New ...	34	III	T.B. +	T.B. −	+2¼lbs.	+	3 ,,	18 ,,	B.E. ·03	−	1
New ...	32	II	T.B. +	T.B. +	=	+	1½ ,,	12 ,,	P.T.O. ·25	1	−
New ...	34	II	T.B. +	T.B. +	−4 lbs.	+	5 ,,	3 ,,	Nil	1	−
New ...	18	II	T.B. +	T.B. −	−5 ,,	+	2 ,,	27 ,,	P.T.O. ·5	−	−
									P.T. ·8	−	1
New ...	35	II	T.B. +	T.B. −	+4 ,,	+	2 ,,	15 ,,	Nil	−	1
New ...	19	II	T.B. +	T.B. −	+5½ ,,	+	2 ,,	2 ,,	Nil	−	1
New ...	17	I	T.B. +	O	+4 ,,	=	2 ,,	4 ,,	P.T.O. ·0003	−	1
New ...	36	II	T.B. −	T.B. +	+1 ,,	+	2 ,,	8 ,,	P.T.O. ·085	1	−
New ...	36	III	T.B. +	T.B. −	−10 ,,	+	3 ,,	24 ,,	Nil	1	−
New ...	39	II	T.B. +	O	+16 ,,	+	3 ,,	1 ,,	P.T.O. ·1	−	1
New ...	46	III	T.B. +	T.B. +	+8 ,,	+	3 ,,	7 ,,	P.T.O. ·07	−	−
									P.T. ·15	1	−
Return ...	35	I	T.B. +	T.B. −	+5 ,,	+	2 ,,	16 ,,	B.E. ·25	−	1
New ...	28	II	T.B. +	T.B. −	−4 ,,	+	3 ,,	10 ,,	P.T.O. ·5	−	−
									P.T. ·3	1	−
Return ...	32	II	T.B. +	T.B. +	=	+	4 ,,	14 ,,	P.T.O. ·003	1	−
New ...	35	III	T.B. +	T.B. −	+12 ,,	+	2 ,,	11 ,,	P.T.O. ·5	−	−
									P.T. ·5	−	1
New ...	29	III	T.B. +	T.B. +	+9 ,,	+	2 ,,	10 ,,	B.E. ·2	1	−
Return ...	36	II	T.B. +	T.B. −	+8 ,,	+	2 ,,	32 ,,	P.T.O. ·075	−	−
									P.T. ·6	−	1
Return ...	34	II	T.B. +	T.B. +	−4 ,,	=	2 ,,	24 ,,	B.E. ·085	1	−
Return ...	32	I	T.B. +	T.B. −	+11 ,,	+	1½ ,,	13 ,,	P.T.O. ·5	−	−
									P.T. ·65	1	−
Return ...	37	II	T.B. +	T.B. −	+17 ,,	+	3 ,,	12 ,,	P.T.O. ·5	−	−
									B.E. ·0004	1	−
New ...	52	III	T.B. +	O	+19 ,,	+	2 ,,	9 ,,	P.T.O. ·5	−	−
									P.T. 1cc.	−	1
Return ...	16	I	T.B. +	O	+31 ,,	=	4 ,,	24 ,,	B.E. ·0007	−	1
New ...	42	III	O	T.B. +	+1 ,,	+	2 ,,	2 ,,	Nil	1	−
Return ...	20	II	T.B. −	T.B. +	+5 ,,	+	5 ,,	12 ,,	P.T.O. ·07	1	−

Note.—Sputum.—T.B. + signifies the presence of Tubercle bacilli. T.B. – denotes that tubercle bacilli could not be demonstrated, and O means no sputum.

Weight.—The sign + signifies an increase, the sign – a diminution, = denotes that the weight remained stationary.

Working Capacity.—The sign + denotes that the working capacity was increased after treatment, the – sign that it was diminished, whilst the sign = means that it remained stationary.

"Quiescent" cases are those which present no adventitious sounds, with the exception in some cases of pleural creaking.

In the tables given above it will be noted that patients have been classified as "New" and "Return" cases. A "New" case signifies one who had not received treatment before; a "Return" case is one which had been previously treated. In Stadium I. 21 are "Return" cases. In Stadium II. there are 31 "Return" cases. In Stadium III. 13 are "Return" cases.

No summary of sputum, weight, working capacity, or the condition of the disease relating to children of 14 years and under has been given, as young children do not as a rule expectorate, and also a growing child will frequently gain weight with active and extensive disease, so that weight in these cases is of less importance than in the case of adults.

28 of those in Stadium I. showed an increase in weight after treatment, 10 lost weight, and in 1 case the weight remained stationary.

The working capacity of 32 was improved after treatment, in only one case was it worse than before treatment, and in 7 instances it remained stationary.

Of those in Stadium II. 70 showed an increase of weight after treatment, 19 had lost weight, and in 8 cases the weight remained stationary.

The working capacity of 76 showed an improvement, in 3 cases it had diminished, and in 12 it remained stationary.

Of those in Stadium III. 37 showed an improvement in working capacity, in 1 case the working capacity remained the same, and in 1 case it was worse than before treatment.

No less than 29 in Stadium III. showed an increase in weight, 8 showed a loss in weight after treatment, and in 2 cases the weight remained stationary.

Amongst the patients in Stadium I. 20, or 51 per cent., left us with their disease in a quiescent condition, 34 patients, or 35 per cent., of those in Stadium II. were also quiescent cases, as were 10 patients, or 26 per cent., of the cases in Stadium III. Our standard of quiescence is an exceedingly high one, so that these figures may be regarded as being satisfactory.

Sputum Examinations in Completed Cases.

An epitome of the changes occurring in the sputa of the patients who at any time presented tubercle bacilli in the sputum and who completed a course of treatment during the year is shown in the following table:—

Males—

	T.B. + becoming T.B. – or O.	T.B. + persisting.	T.B. – or O becoming T.B. +.	Total.
Stage I.	15	3	5	23
Stage II.	26	12	8	56
Stage III.	13	2	3	24

Females—

	T.B. + becoming T.B. – or O.	T.B. + persisting.	T.B. – or O becoming T.B. +.	Total.
Stage I.	10	2	2	14
Stage II.	18	5	7	30
Stage III.	8	6	2	16

Children—

	T.B. + becoming T.B. – or O.	T.B. + persisting.	T.B. – or O becoming T.B. +.	Total.
Stage I.	3	0	0	3
Stage II.	2	0	1	3
Stage III.	0	0	0	0

In the table below, the bacillary losses and percentages are shown for the 288 adult male and female cases who completed a course of treatment at the Centre during the year.

The bacillary losses are again very satisfactory, the total bacillary loss in all stages being 62·13 per cent.

The bacillary loss in cases belonging to Stadium I. is 70 per cent.; in Stadium II., 62·29 per cent.; and in Stadium III., 52·5 per cent.

In 1916 the total bacillary loss for all cases was 70·11 per cent.; for those in Stadium I., 85·13 per cent.; in Stadium II., 69·91 per cent.; and in Stadium III., 50 per cent.

From this it will be seen that the losses in 1917 were slightly less than in 1916, with the exception of cases in Stadium III., when the bacillary loss was 2·5 per cent. greater than in 1916.

These figures do not represent the loss immediately after the completion of a period of Sanatorium treatment when the patient's physical condition is at its best, but are the results obtained after a course of treatment in the out-patient department when the patient has been living at home and following his occupation, in many instances for periods varying from six to eighteen months.

Analysis of Sputum Results of Adult Male and Female Patients who Completed a Course of Treatment, *i.e.*, 488 Cases.

	Total Nos. Cases.	T.B. + before or during Treatment.	No. Losing T.B. + after Treatment.	Bacillary Loss %.
Stadium I.	168	40	28	70%
Stadium II.	239	89	56	62·29%
Stadium III.	81	40	21	52·5%
Totals	488	169	105	52·13%

In the succeeding tables details as to weight, working capacity, and the condition of the disease are given concerning those patients who completed a course of treatment during the year in whose sputum no tubercle bacilli were found or who had no sputum.

It is interesting to note that an increase of weight took place in 79 per cent. of adult patients in Stadium I. and II. It will also be seen that the working capacity was increased in a higher percentage of those in Stadium II. and III. than amongst those in Stadium I.; this may be partially accounted for by the fact that cases in Stadium I. are often more acutely active when undertaking treatment than are some of those in the more advanced classifications of the disease.

Weight, Working Capacity and Condition of Disease of those completed cases in whose Sputum Tubercle Bacilli were not Found.

Males and Females (over 14 years of age).

	Weight.			Working Capacity.			Disease after Treatment.		
Stage.	Increased.	Lost.	Stationary.	Increased.	Diminished.	Stationary.	Active.	Quiescent.	Total.
I.	...104 =79%	25 =19%	2 =1%	102 =77%	—	29 =22%	25 =19%	106 =81%	131
II.	...121 =79%	23 =15%	9 =5%	128 =83%	1 =6%	24 =15%	62 =40%	91 =59%	153
III.	... 31 =75%	9 =21%	1 =2%	34 =82%	1 =2%	6 =14%	32 =78%	9 =21%	41

Children (under 14 years of age).

	Weight.			Working Capacity.			Disease after Treatment.		
Stage.	Increased.	Lost.	Stationary.	Increased.	Diminished.	Stationary.	Active.	Quiescent.	Total.
I.	...125 =100%	—	—	102 =81%	—	23 =18%	26 =20%	99 =79%	125
II.	... 62 =100%	—	—	52 =83%	—	10 =16%	28 =45%	34 =54%	62
III.	... 24 =100%	—	—	18 –75%	—	6 =25%	10 =41%	14 =58%	24

Mode of Onset of Tuberculosis.

The mode of onset in cases of pulmonary tuberculosis is a matter of interest and importance. The records of our cases who completed treatment at the Centre during the year, when analysed, show that no less than 24·79· per cent. amongst the adults give a definite history of pleurisy which occurred at very variable intervals before treatment for tuberculosis was sought.

In 12·72 per cent. the onset of the disease was associated with an attack of pneumonia, and in 12·5 per cent. of the cases the disease commenced with definite bronchitis, and in the same percentage of cases, *i.e.*, 12·5 per cent., the disease commenced with hæmoptysis.

Pleurisy.—Reference to descriptive accounts of pleurisy in medical text books too often conveys the idea that it is to be looked upon as a definite disease, which occurs alone, or as an uneventful complication of various acute and chronic diseases.

Too frequently we find ourselves readily accepting this impression, and being quite satisfied to diagnose and treat what we clinically recognise as pleurisy without considering etiological or remote prognostic indications.

Insufficient stress is laid upon the fact that in the majority of cases pleurisy must be regarded as being symptomatic of some other disease, it must always have some definite significance, and should be regarded as a "signal" symptom of no mean importance, and unless it can be definitely proved that it is due to some other cause, the practitioner is justified in regarding the origin as being tuberculous—this applies to either serous or sero-fibrinous pleurisy.

A diagnosis of pleurisy alone can never be accepted as final or sufficient, and the diseases of which pleurisy is but an indication must always be carefully sought for. In the same way the relief of pain and other measures which as a form of treatment are directed against the pleurisy must never be looked upon as anything more than the temporary treatment of symptoms.

Before pleurisy can be treated efficiently or scientifically it is essential to first diagnose the disease which gives rise to it.

Hæmoptysis is a very frequent occurrence in pulmonary tuberculosis; in our series of cases 12·5 per cent. gave a history of this *prior* to seeking treatment for or advice from us as to pulmonary tuberculosis. Had the history of the patient been investigated further, *i.e.*, after a diagnosis of pulmonary tuberculosis had been made and treatment given, no doubt we should have found a much higher percentage with a record of hæmoptysis.

In the Phipps Institute in America 47·6 per cent. of some thousands of cases gave a history of hæmoptysis at the time of their first visit.

Pneumonia.—Tuberculosis often manifests itself with signs of consolidation in the lung, cough, pain and chills, and for some time it is impossible to say whether we are dealing with a lobar pneumonia or pulmonary tuberculosis. In cases of protracted pneumonia a suspicion of tuberculosis should always be aroused and the sputum should be repeatedly examined for tubercle bacilli. 12·72 per cent. of our series of cases have a history showing that their tuberculosis most probably dated from an attack of pneumonia.

Bronchitis.—Is in many instances closely associated with pulmonary tuberculosis. Many cases of tuberculosis are at first diagnosed because of a cold and resultant bronchitis which will not clear up. Chronic bronchitis per se is a much less common disease than is generally thought, and it is certain that in many instances it is merely an evidence of the more serious tuberculous infection. In our series 12·5 per cent. of the cases dated the onset of their disease from an attack of so-called bronchitis.

TOTAL NUMBER OF CASES EXAMINED—488. ADULTS.

Time in years before treatment for tuberculosis was sought.

	Up to 3.	4—6.	7—10.	11—15.	16—20.	21 and over.	No date given.	Total.	%
Pleurisy	34	18	10	5	12	3	39	121	=24·79%
Pneumonia	6	10	3	5	8	1	29	62	=12·72%
Bronchitis	1	1	—	—	—	—	59	61	=12·5%
Hæmoptysis	24	8	5	—	—	—	24	61	=12·5%

Amongst children the onset of the tuberculosis was associated in a very large percentage of cases with an attack of measles, this being so in no less than 31·8 per cent. of those reviewed. In 112, or 51·6 per cent., of the cases enlarged cervical glands were noted.

A diagnosis of tuberculous cervical glands in young children should be made only after the exercise of some care. Palpable cervical glands are common in childhood, in fact, childhood is the period of lymphoid activity, and before deciding that enlarged glands in the neck are due to tuberculosis an examination of the other groups of palpable glands should be made. If this were done, I venture to think that the percentage of tuberculous cervical glands recorded would be less.

TOTAL NUMBER OF CASES EXAMINED—217. CHILDREN UNDER 14 YEARS OF AGE.

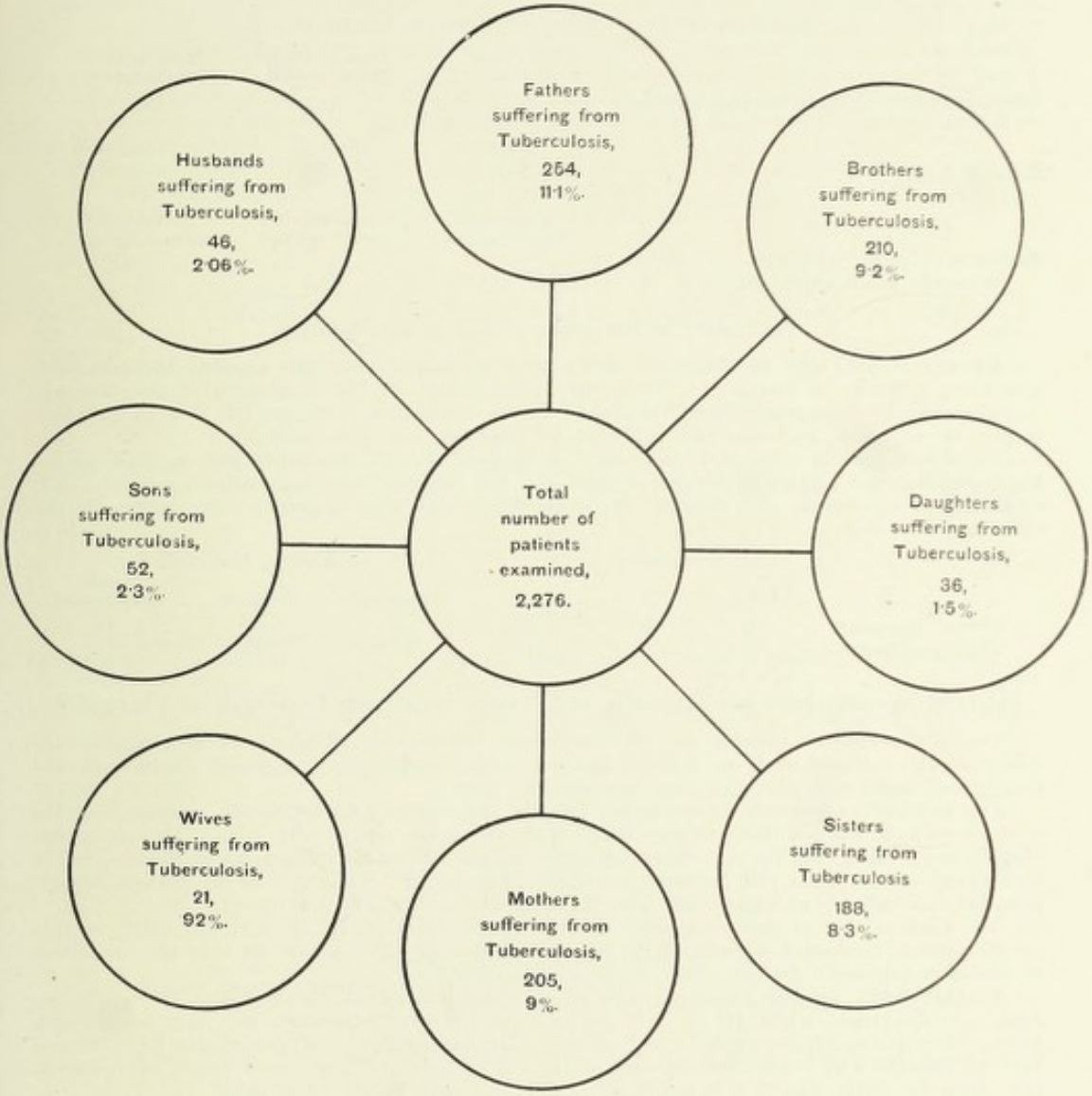
Measles.	Pertussis.	Pneumonia.	Bronchitis.	Pleurisy.	Cervical Glands.
69 or 31·79%	16 or 7·33%	52 or 23·17%	33 or 15·2%	10 or 4·6%	112 or 51·6%

POSSIBLE SOURCE OF INFECTION.

The following diagram is compiled from the clinical records of 2,276 new cases examined during the year at the Centre, and shows the number and percentages of husbands, wives, fathers, mothers, brothers, sisters, sons and daughters who were definitely known to be suffering from, or who had died as a result of, pulmonary tuberculosis. Where more than one relative was found to be affected with pulmonary tuberculosis each relative has been tabulated in the diagram.

The figures for an approximating number in 1916 are interesting when compared as showing very similar percentages.

	Husbands.	Fathers.	Brothers.	Sons.	Daughters.	Wives.	Mothers.	Sisters.
1916 ...	·87%	8·12%	9·03%	1·09%	1·42%	·98%	6·84%	7·10%
1917 ...	2·06%	11·1%	9·2%	2·3%	1·5%	·92%	9%	8·3%



Dental Treatment.

Mr. Randall, the dental surgeon, has provided me with the following short account of the work done in his department during the past year:—

"The dental department at the Anti-Tuberculosis Centre has continued its treatment on the same lines as those followed during the previous year.

"The removal of septic teeth has constituted the main part of its work, 1,486 teeth have been removed either under general or local anæsthesia. A local anæsthetic has been administered on 257 separate occasions, and there have been 89 administrations of nitrous oxide gas.

"On the conservative side 41 patients have had their teeth scaled, 112 teeth have been filled, 58 of which were amalgam fillings and 54 were cemented fillings, 8 teeth have been root filled.

"Twenty-five patients have been supplied with artificial dentures."

Below are given some tables showing the condition of the teeth and gums and the masticatory power of a number of adult patients attending the Centre during the year, whose dental condition has been classified.

The condition of the mouths was noted to show the number of teeth in which caries was present. The condition of gums shows whether these were healthy, inflamed or purulent.

The masticatory power is indicated by showing the number of molar and bicusped teeth which approximate and are capable of masticating food.

Classification of Dental Conditions in 450 Cases.

	None Infected.	One to Four Teeth Infected.	More than Four Infected.
Number of teeth with infected pulp chambers ...	88	262	100
	Healthy.	**Gingivitis.**	**Pyorrhœa.**
State of Gums	271	102	77
	6 and more approximating.	**Less than 6 approximating.**	**None approximating.**
Masticatory power indicated in molars and bicuspeds which approximate	273	152	25

Treatment of Discharged Soldiers and Sailors.

During the year 105 ex-soldiers or sailors were discharged from the different sanatoria after completing a course of treatment. These men were treated on the nomination of the Insurance Commissioners by arrangement with the Public Health Committee. Of the 105 men 16 had been treated by us before and were old patients, the other 89 were new cases.

Twenty-six were in Stadium I., forty were in Stadium II., and thirty-nine were in Stadium III. Eighty-eight gained weight, twelve lost weight, and five remained stationary after treatment. The conditions as to sputum and capacity for work before and after treatment are given in the following table:—

	Sputum.			*Working Capacity.*		
	T.B. +	T.B. −	O.	Unimpaired.	Impaired.	Totally Incapacitated.
Before treatment ...	52	40	13	4	88	13
After treatment ...	31	53	21	34	60	11

Patients Dismissed from the Sanatoria and Leaving before the Completion of Treatment.

During the year 20 patients were dismissed from the different Sanatoria, in each instance the reason which compelled such an extreme measure being drunkenness or repeated disobedience and breaches of important rules after due warning was given.

One hundred and twenty-seven patients left the different Sanatoria prior to completion of the treatment which was advised and sanctioned. In the great majority of cases this course was adopted for domestic reasons, *i.e.*, illness at home, no one to look after husband or children, return of husband or son from the Services, wounded or discharged. Difficulty as to sickness benefit, pensions, and military allowances was also the alleged cause in some instances.

The total number of patients passing through all the Sanatoria in the year was 2,321, so that the 20 patients discharged represented ·87 per cent., while the 127 who left prior to the completion of treatment represents 5·4 per cent., of the total admissions.

In 1916 2,289 patients passed through all the Sanatoria during the year and 18, or ·78 per cent., were discharged, whilst 117, or 5·11 per cent. of the total admissions, left prior to the completion of treatment, from which it will be seen that the numbers and percentages for 1916 and 1917 of patients who were dismissed and of those who failed to complete a course of treatment has varied but little, and it is a satisfactory thing that they should be so small.

In my last report I reviewed at length the causes of unrest and lack of discipline amongst patients in Sanatoria and called attention to the fact that in many cases of pulmonary tuberculosis there is a mental atmosphere which cannot be regarded as entirely normal. This mentality, combined with the lack of suitable employment, particularly when the patient has been in an institution for many months, is frequently the pre-disposing cause when trouble does arise.

When patients make charges against the Sanatorium and members of its staff, and after investigation they are found to be baseless, the authority receiving the complaint might with advantage notify the Medical Superintendent that the complaint made was without grounds, and the patient, too, should receive a warning from the same source. The omission to do this has produced a bad effect, and leads to the unnecessary resignation of members of the nursing staffs who can ill be spared.

When patients recognise that they are saddled with no responsibility for any charge they may think fit to make, they become very difficult to deal with, and the lot of doctors and nurses under these circumstances becomes insupportable.

Laboratory Work.

During the year 5,550 specimens of sputum were examined at the Centre; in addition there were also examined a number of other specimens.

Patients Lost Sight Of During the Year.

During the year it is found in connection with most Tuberculosis Schemes that a certain number of patients have been lost sight of and cannot be traced. A large number undoubtedly die, others leave the district, whilst some have succeeded in covering up their tracks and cannot be traced.

During the past year we lost sight of 692 patients, *i.e.*, 372 males, 304 females, and 16 children. The clinical records of these patients have been gone into, and facts relating to the year during which the patient first came under treatment, the form of treatment primarily advised, the stage of the disease, the condition of the sputum, and the reasons for the patients' disappearance have been set forth in tabular form.

These figures refer to patients who during 1917 are known to have died or left the city, and also to those who could not be traced during the same period, and although lost sight of in this year, came under our care in the period extending from 1910 to 1917.

Males.

Year Patient First came under Treatment.	Form of Treatment Primarily Advised.				Stage of Disease.				Condition of Sputum.			Final Report.		
	San.	Hosp.	Disp.	Dom. or Home.	I.	II.	III.	IV.	T.B. +	T.B. −	Nil.	Dead.	Left City.	Cannot be Traced.
1910 ...	−	−	−	−	−	−	−	−	−	−	−	−	−	−
1911 ...	1	−	−	−	−	1	−	−	1	−	−	1	−	−
1912 ...	6	2	1	−	1	2	6	−	7	2	−	8	−	1
1913 ...	29	4	4	−	10	12	15	−	22	10	5	28	1	8
1914 ...	41	1	4	3	10	27	12	−	30	15	4	40	3	6
1915 ...	45	4	2	4	8	15	32	−	40	14	1	49	1	5
1916 ...	102	12	7	13	11	30	93	−	93	33	8	117	6	11
1917 ...	29	19	3	36	7	20	60	−	55	29	3	78	7	2

Women.

Year Patient First came under Treatment.	Form of Treatment Primarily Advised.				Stage of Disease.				Condition of Sputum.			Final Report.		
	San.	Hosp.	Disp.	Dom. or Home.	I.	II.	III.	IV.	T.B. +	T.B. −	Nil.	Dead.	Left City.	Cannot be Traced.
1910 ...	1	−	−	−	−	1	−	−	−	1	−	−	−	1
1911 ...	1	−	−	−	−	1	−	−	1	−	−	1	−	−
1912 ...	8	1	−	−	2	4	3	−	6	3	−	5	−	4
1913 ...	16	5	6	1	12	12	4	−	10	15	3	10	3	15
1914 ...	29	2	10	5	14	10	20	2	23	14	9	14	10	22
1915 ...	42	8	5	3	13	17	28	−	28	19	11	40	5	13
1916 ...	61	11	1	7	6	17	57	−	47	26	7	67	6	7
1917 ...	34	26	−	21	5	12	64	−	53	19	9	72	5	4

Children under 14 Years.

Year Patient First came under Treatment.	Form of Treatment Primarily Advised.				Stage of Disease.				Condition of Sputum.			Final Report.		
	San.	Hosp.	Disp.	Home.	I.	II.	III.	IV.	T.B. +	T.B. −	Nil.	Dead.	Left City.	Cannot be Traced.
1913 ...	1	−	−	−	1	−	−	−	−	−	1	−	−	1
1914 ...	2	−	1	−	2	−	−	1	−	−	−	−	1	2
1915 ...	3	−	1	−	2	−	2	−	−	2	2	1	2	1
1916 ...	2	−	−	1	−	1	2	−	−	1	2	3	−	−
1917 ...	2	1	1	1	−	2	3	−	−	2	3	4	−	1

Review of Patients treated at the Centre in 1913.

It is a matter of interest and importance to examine the records of those patients whom we have treated in the past, and to review the ultimate results of the treatment given. The amount of work involved in such an undertaking, dealing even with the patients treated in one given year, is very large, and it would be impossible to investigate all cases treated in the past within a short period without an increase in both the medical and clerical staff.

This year we have undertaken a survey of all the cases treated at the Centre in the year 1913. They numbered 1,655.

In the first instance the patients have been divided for the purpose of classification into those who are known to be living and those who are known to be dead.

The cases of those who are known to be living are further sub-divided into those in whose sputa tubercle bacilli were demonstrated and those who had no bacilli or no sputum. For these two sets of patients tables have been drawn up, showing the stage of disease in which the patient was when he *first* came under treatment, *and the working capacity at the time he was last visited or examined.* It is also stated whether the patient has been lost sight of from known causes other than death, and the number in each sex is recorded. When any of the male patients are known to have served in the Army or Navy after treatment it has been so stated.

Those patients who are known to be dead have been classified in a table, showing whether the sputum presented tubercle bacilli or not when the patient first came before us. They have also been tabulated to show the different stages of the disease, and the working capacity of the patient when he first came before us has been noted. The number in each sex has been noted, and the number of cases giving a definite history of hæmoptysis or blood-spitting, and pleurisy, at the time of their first examination is also shown.

CASES IN THE SPUTUM OF WHICH T.B. WERE DEMONSTRATED.

Total No.	Stad. I.	Stad. II.	Stad. III.	Working regularly.	Working irregularly.	Totally incapacitated.	Inability to work due to other causes than Tuberculosis.	Left City.	Served in Army or Navy since treated.	Males.	Females.
404	132	175	97	182	119	43	—	60	13	233	171

CASES IN THE SPUTUM OF WHICH T.B. WERE NOT FOUND.

Total No.	Stad. I.	Stad. II.	Stad. III.	Working regularly.	Working irregularly.	Totally incapacitated.	Inability to work due to other causes than Tuberculosis.	Left City.	Served in Army or Navy since treated.	Males.	Females.
715	378	258	79	432	130	22	6	125	44	321	394

The discrepancy between the total numbers and the numbers shown under the heading of "Working Capacity" is accounted for by the 60 and 125 patients respectively in each table, who have left the city, and for whom no working capacity to date can therefore be given.

Most of the patients who are classified in the two tables above were examined and visited in the last two months of 1917 and the first three of 1918.

CASES WHO ARE KNOWN TO BE DEAD. TOTAL, 161.

Working Capacity when first examined.

T.B. −	No. Sputum.	T.B. +	Stad. I.	Stad. II.	Stad. III.	Working regularly.	Working irregularly.	Totally incapacitated.	Initial Hæmoptysis.	Initial Pleurisy.	Males.	Females.
25	21	115	34	51	76	28	71	62	34	23	116	45

In the above tables 1,280 patients are classified; this leaves a balance of 375, whom we are unable to trace.

It would be unreasonable to suppose that all of them were dead. Experience has shown us that it is not the consumptive who is going down hill who wishes to lose contact, but rather those who are doing well, and the latter often ask us to remove their names from our lists, stating that they will report again when they find it necessary.

SUMMARY OF CASES.

Known to be alive	928,	or 56·1%.
Known to have left the City	185,	or 11·17%.
Known to be dead	161,	or 9·7%.
"No Trace"	375,	or 22·65%.
Incapacitated from work through causes other than tuberculosis	6	
	1,655	

REPORT ON YARDLEY ROAD SANATORIUM.

(BY DR. G. B. DIXON, MEDICAL SUPERINTENDENT.)

In the Municipal and the Romsley Hill Sanatoria the treatment given to patients is on similar lines, it comprises hygienic and dietetic treatment, graduated rest, exercise and work, the employment of appropriate drugs when indicated, specific treatment by means of the various tuberculins, etc., the induction of artificial pneumo-thorax in suitable cases and heliotherapy, or treatment by the direct action of the sun's rays.

During the year which has passed discussions have taken place in the medical press and at different medical societies upon the value and results of sanatorium treatment, and it has been suggested that sanatorium treatment from the public point of view has proved a failure, although it is admitted that it has rendered very material service to individuals.

For the diminution of the case-incidence, and the lowering of the death-rate from tuberculosis, it has been said that other means must be found, since the sanatorium can no longer be regarded as efficient for these purposes.

Such a charge requires careful consideration, before accepting the statement that sanatorium treatment has proved a failure, and it would be well to consider:—

(*a*) What the sanatorium and its treatment represent; and
(*b*) What results may fairly and reasonably be expected from such treatment.

Sanatoria for the treatment of tuberculosis are institutions especially designed, equipped, staffed, and set apart for the treatment, *and not directly for the prevention of what*, in some of its phases, is one of the most chronic diseases known.

The rôle of the sanatorium has never been to diminish the case-incidence of tuberculosis. It is an institution or hospital where patients can undertake the initial stages of treatment, where acute phases of the disease may be overcome and, if necessary, particular forms of treatment initiated, the requisite knowledge concerning dietary, ventilation, infection, sputum collection and disinfection, occupation, etc., can be assimilated at the same time.

The protean nature of tuberculosis, with its varying phases of activity and quiescence, relapses and recrudescences, is a characteristic upon which emphatic and reiterated stress is laid by medical writers in all countries.

The treatment necessary to keep such a disease at bay and to prevent it hopelessly wrecking the life and prospects of the individual attacked must be spread over a lifetime, and far exceeds any period which can be spent in a sanatorium or hospital. Constant adherence to a life modelled on definite hygienic principles becomes necessary for all time, residence abroad or in a different locality may be imperative, a fresh means of earning a livelihood may have to be sought, celibacy must oft times be enforced, in short, the entire aspect of a patient's life may have to be re-cast if he is to live.

This in an abbreviated way indicates the scope of the sanatorium, and the duration and ramifications of its treatment.

Consideration, therefore, however brief, of the outstanding facts of sanatorium treatment renders it difficult to appreciate why it of all factors should be chosen as the scapegoat, when a reason has to be assigned for the non-reduction of the case-incidence of tuberculosis.

On what points, then, is the success or otherwise of sanatorium treatment to be gauged? Without being too precise, success or failure may be measured by the percentage of bacillary losses in the sputum, the improvement or deterioration of working capacity, the diminution, cessation, or accentuation of symptoms, the quiescence or activity of the disease after a prolonged course of treatment, and, if it can be estimated, the prolongation of life.

It must be acknowledged unreservedly, if not, it cannot be too vigorously contended, that institutions called into existence for the diagnosis and treatment of a usually chronic disease cannot rightly have their treatment stigmatised because the case-incidence and death-rate of the disease have not been materially affected, a result for the bringing about of which they were not created.

The prevention of tuberculosis is inextricably bound up with the question of proper housing, and tuberculosis may be looked upon largely as a house disease; it is there in the majority of cases that the disease is acquired. As a rule, the worse the living conditions the higher will be the incidence of the disease.

Under "home conditions" are to be included both the dwelling itself and the habits of the occupants. Education of the people is no less necessary than their suitable housing. Cleanliness, good ventilation, regular and sufficient feeding, the necessity of sufficient sleep and clothing, and the avoidance of all intemperance and dissipation, must be realised and taught if the case-incidence of tuberculosis is to be affected. The extended and ample provision of hospitals for the accommodation of advanced and infective cases of tuberculosis whose home conditions will not permit of efficient isolation must also not be overlooked.

It is in this direction we must not only look, but act, if the death-rate from tuberculosis is to be decreased.

Preventive measures in connection with tuberculosis are complex and far-reaching, but had they been pressed with the same zeal and determination as those for its treatment, there would have been, to-day, no necessity for reproach.

The terms prevention and treatment, as regards tuberculosis are not synonyms, a fact which cannot be too emphatically recorded. Failure to grasp and assimilate this axiom has produced unnecessary and unmerited dissatisfaction with the sanatorium and its treatment.

Patients Treated During the Year.

During the year 1917 1,143 patients were admitted to the Sanatorium, 1,026 were discharged, and 130 male patients died. Of the 1,026 patients discharged 300 were males, 312 were females, and 414 were children.

101 male patients, 110 female patients, and 67 children were admitted to the Sanatorium as "observation" cases. "Observation" patients are those who after careful and repeated examinations at the Centre are found to be indefinite either as to the presence or absence of tuberculosis or as to its activity or otherwise when present. In order that further investigation may be carried out, they were admitted to the cubicles at Yardley Road Sanatorium reserved for this purpose. The period for observation is usually for two or three weeks.

Nineteen men who had to be admitted to Yardley Road for various reasons are classified as "Probationary" patients. They were very advanced and acute cases; eight of them died, and eleven remained for treatment, and are included in the following tables.

Of the male patients admitted during the year 130 died; they were "Poor-Law" patients, with the exception of the eight "Probationary" patients.

There were no deaths during the year amongst either the women or children in the Sanatorium.

The classification on admission of the 1,026 patients discharged and the 130 who died during the year is set out below:—

Males for observation	101
Females for observation	110
Children for observation	67
Females for treatment	202
Children for treatment	347
Poor Law Male Patients	310
Probationary Males	19
	1,156

Of the "observation" females, 64 only were treated at Yardley Road Sanatorium, 8 "probationary" males died, and 122 of the "Poor-Law" males died.

Of the 101 male patients primarily admitted for observation none were treated at the Sanatorium, and are therefore not included in the following tables, nor are the 130 men who died included.

Of the female cases 63 are not tabulated, 15 were transferred for treatment to other Sanatoria, and in the remaining 48 there was a negative diagnosis in 27 cases, and 21 left within a day or two of admission.

Of the children admitted for observation 9 discharged with a negative diagnosis, 6 transferred to the City Hospital suffering from scarlet fever, and 15 who left within a day or two of their admission are not included.

These deductions reduce the figures for male patients to 199, for females to 249, and for children to 384. For the purposes of tabulation, therefore, of the 1,026 patients discharged during the year, only 832 are dealt with in the following tables.

In the table below are given the results obtained after "observation" in the Sanatorium of 278 "suspect" cases:—

	Positive Diagnosis.	Negative Diagnosis.	Diagnosis Incompleted.	Total.
Males	72	24	5	101
Females	78	27	5	110
Children	58	9	—	67
	208	60	10	278

Classification of Patients.

In the table below the patients are classified according to the stage of their disease upon admission:—

	Stadium I.	Stadium II.	Stadium III.
Males	21	52	126
Females	77	94	78
Children	191	123	70

In the above table it will be seen that the majority of male patients are in an advanced stage of the disease; all of them were "Poor-Law" patients, and therefore admitted without previous examination by the Tuberculosis medical staff. The high mortality of these patients has already been noted. Many of them never leave their beds from the day of admission until death. The impossibility of obtaining good results from treatment in such cases is obvious. As a prophylactic measure, however, in the interest of the patients' relatives it is usually of the utmost importance that they should be admitted to and cared for in a hospital.

The age incidence of those admitted to the Sanatorium is given in the following tables:—

	Males.	Females.
In first decade	172 ...	128
In second decade	113 ...	125
In third decade	85 ...	108
In fourth decade	87 ...	76
In fifth decade	106 ...	30
In sixth decade	78 ...	6
In seventh decade...	28 ...	1
Total	669 ...	474

Working Capacity.

In the succeeding tables the working capacity for males, females and children before and after treatment in the Sanatorium is set out according to the stage of the disease in which the patient is classified. It should be understood concerning this and other tables relating to the working capacity, weight and sputum results, of patients just leaving the Sanatoria, that the figures refer to a period immediately following treatment under ideal conditions, and are therefore recorded at an advantageous time.

Working Capacity (Males).

	Total No.	Unimpaired.	Impaired.	Totally Incapacitated.
Stadium I.				
Before treatment ...	21	9 =42·8%	10 =47·6%	2 =9·5%
After treatment ...	21	16 =76·1%	5 =23·8%	—
Stadium II.				
Before treatment ...	52	1 =1·9%	31 =59·6%	20 =38·4%
After treatment ...	52	8 =15·3%	31 =59·6%	13 =25%
Stadium III.				
Before treatment ...	126	—	46 =36·5%	80 =63·4%
After treatment ...	126	10 =7·9%	71 =56·3%	45 =35·7%

Working Capacity (Women).

	Total No.	Unimpaired.	Impaired.	Totally Incapacitated.
Stadium I.				
Before treatment ...	77	9 =11·6%	65 =84·4%	3 =3·9%
After treatment ...	77	63 =81·8%	12 =15·5%	2 =2·5%
Stadium II.				
Before treatment ...	94	1 =1·06%	78 =82·9%	15 =15·9%
After treatment ...	94	72 =76·6%	16 =17·02%	6 =6·3%
Stadium III.				
Before treatment ...	78	—	24 =30·7%	54 =69·2%
After treatment ...	78	19 =24·3%	38 =48·7%	21 =26·9%

Working Capacity (Children).

	Total No.	Unimpaired.	Impaired.	Totally Incapacitated.
Stadium I.				
Before treatment ...	191	48 =25·1%	138 =72·2%	5 =2·6%
After treatment ...	191	168 =87·9%	23 =12·04%	—
Stadium II.				
Before treatment ...	123	5 =4·06%	114 =92·6%	4 =3·26%
After treatment ...	123	104 =84·5%	18 =14·6%	1 =·81%
Stadium III.				
Before treatment ...	70	—	30 =42·8%	40 =57·1%
After treatment ...	70	26 =37·1%	33 =47·1%	11 =15·7%

Weights.

The question of food and feeding in connection with the tuberculous is a matter of importance and one about which medical opinion in recent years has undergone a change.

In the past super-alimentation or over-feeding was too frequently advocated and practised, with the result that a great deal of fat was accumulated and correspondingly large increases in weight were recorded. These, however, did not represent improvement in the condition of the disease, nor did they indicate in most instances an enhanced state of physical fitness.

Attainment of excessive increases in weight was frequently accompanied by derangement and injury of the digestive system, which in tuberculosis is to be avoided at all costs. Much assistance in preventing this has been given by the Food Control Authorities.

Large increases in weight produced by gross feeding are not permanent, and frequently diminish or are lost when patients return to work, with the result that mental depression and despondency are produced.

When the patient's weight at the commencement of treatment is below what it ought to be an increase should be aimed at, and if this can be achieved whilst the patient is working and exercising freely, then it is of undoubted value as indicating that reaction to treatment is occurring.

Food indications in the treatment of tuberculosis should have other aims than a mere increase in the weight of the patient.

In those suffering from pulmonary tuberculosis a diminution of the mineral salts stored in body has been shown to occur. Analyses of portions of bone taken from the bodies of healthy and tuberculous patients show excessive de-mineralisation to have occurred in the case of the latter.

Certain animal and vegetable foods are remarkable for the predominance of their mineral contents, and it is well recognised that tuberculous patients can eat almost anything, if due regard is given to the individual's digestive power. Here, then, we have a definite indication for treatment by food other than the increase of weight, viz. :—the re-mineralisation of the system which has undergone depletion in this direction.

An attempt, therefore, should be made to use the different articles of dietary as vehicles for the re-establishment of equilibrium between the fixation and loss of mineral salts.

"Poor-Law" Men.

	Total No.	Gained.	Lost.	Stationary.
Stage I.	21	21	—	—
Stage II.	52	38	4	10
Stage III.	126	86	23	17

Women.

	Total No.	Lost Weight.	Stationary.	Gain of 1-5.	Gain of 6-10.	Gain of 11-15.	Gain of 16-20.	Gain of over 20 lbs.
Stage I. ...	77	4	2	30	28	10	2	1
Stage II. ...	94	4	—	25	35	22	8	—
Stage III. ...	78	8	2	25	21	17	5	—

Children.

	Total No.	Lost Weight.	Stationary.	Gain of 1-5.	Gain of 6-10.	Gain of 11-15.	Gain of 16-20.	Gain of over 20 lbs.
Stage I. ...	191	5	2	73	89	16	5	1
Stage II. ...	123	3	2	48	52	14	4	—
Stage III. ...	70	3	—	39	21	6	1	—

SPUTUM.

In the following tables the sputum results at the commencement and termination of Sanatorium treatment are indicated. They are arranged according to the sex and stage of the disease.

"Poor-Law" Males.

	Total No.	T.B. +	T.B. –	No Sputum.
Stage I.				
Before treatment ...	21	3 = 14·2%	9 = 42·9%	9 = 42·9%
After treatment ...	21	2 = 9·4%	9 = 42·9%	10 = 48·9%
Bacillary loss		33%		
Stage II.				
Before treatment ...	52	21 = 40·3%	27 = 51·9%	4 = 7·9%
After treatment ...	52	17 = 32·6%	30 = 57·6%	5 = 9·6%
Bacillary loss		19%		
Stage III.				
Before treatment ...	126	83 = 65·8%	42 = 33·3%	1 = ·79%
After treatment ...	126	87 = 69·04%	38 = 30·1%	1 = ·79%
Bacillary loss		+4%		

Women.

	Total No.	T.B. +	T.B. –	No Sputum.
Stage I.				
Before treatment ...	77	5 = 6·4%	28 = 36·3%	44 = 57·1%
After treatment ...	77	4 = 5·1%	24 = 31·1%	49 = 63·6%
Bacillary loss		20%		
Stage II.				
Before treatment ...	94	15 = 16%	44 = 46·8%	35 = 37·2%
After treatment ...	94	10 = 10·6%	35 = 37·2%	49 = 52·1%
Bacillary loss		33%		
Stage III.				
Before treatment ...	78	30 = 38·5%	28 = 35·9%	20 = 25·6%
After treatment ...	78	22 = 28·2%	26 = 33·3%	30 = 38·5%
Bacillary loss		26·6%		

Children.

	Total No.	T.B. +	T.B. –	No Sputum.
Stage I.				
Before treatment ...	191	—	35 = 18·3%	156 = 81·6%
After treatment ...	191	—	20 = 10·5%	171 = 89·5%
Stage II.				
Before treatment ...	123	9 = 7·3%	22 = 17·9%	92 = 74·8%
After treatment ...	123	3 = 2·4%	7 = 5·7%	113 = 91·8%
Bacillary loss		66%		
Stage III.				
Before treatment ...	70	7 = 10%	21 = 30%	42 = 60%
After treatment ...	70	5 = 7·1%	5 = 7·1%	60 = 85·7%
Bacillary loss		28%		

Laboratory Report.

During the year 2,035 specimens of sputum were examined in the laboratory at the Sanatorium; this number includes some which were sent from the Centre for a special process, as at the Centre we possess no incubator.

In addition to the sputa there were 1,323 examinations of urines and other specimens.

Of the sputum examinations 945 were subjected to the "sedimentation process," which is a more complicated and lengthy method than the one commonly used; it is also said to give more correct results. We were able to demonstrate the presence of tubercle bacilli in 205 of the 945 specimens so treated, which by ordinary methods did not show tubercle bacilli.

Treatment Recommended After Sanatorium.

The following table shows the treatment which was recommended for the female and children patients on their discharge from the Sanatorium.

	Total No.	Recommended for Dispensary Treatment.	Recommended for Domiciliary Treatment.	Returning to their own Doctor.
Women	249	190	38	21
Children	384	373	—	11

School Work.

The provision of tuition for the children has proved of the greatest benefit; they are undoubtedly happier, make better progress medically, and they behave much better when suitable and interesting occupation is found for them.

We were fortunate in receiving as a gift some Boy Scout outfits in the form of a drum, dummy rifles, scout axes, signalling and other flags, and with these the boys are constantly drilling and marching.

The schoolmistress, Miss Elrick, has given me the following report:—

"During the last year the school has rapidly grown. There is accommodation for 44 boys and 20 girls. For the past year 258 boys and 169 girls have attended school, making a total of 427 children.

"As far as possible the children follow on the same lines as when they were in the Elementary Schools, with the exception that more hand-work is taken, especially in the afternoon, as this subject is very restful, and does not over exert the children, either mentally or physically.

"The more fatiguing subjects, *i.e.*, Arithmetic and English, are always taken in the morning, when the children are fresher.

"In many cases some of the children have not attended school for several years previous to entering the Sanatorium, and are therefore very backward. These children are given special help, and one or two of the most capable older girls and boys are appointed to give them extra help in arithmetic, reading and writing; this plan works splendidly.

"The position of 'Prefect' is given to the most capable and trustworthy boy. The children vote for their 'Prefect,' and the boy who obtains the highest number of votes wins this honour, which he usually holds as long as he is in the Sanatorium.

"The 'Prefect' is held responsible for certain duties, and the boys look up to him, both in and out of school.

"A large dolls' house was made last Christmas. The boys made the house and the girls did the sewing for the house furnishing and dressed the dolls, which altogether proved most interesting and delightful to them.

"The boys are very keenly interested in gardening. Twelve of the most enthusiastic boys have been chosen, and each has been given a garden, which they have planted, half with vegetables, half with flowers, and their owners are eagerly awaiting the results."

Mr. Hall-Rose continues to attend once weekly to instruct patients in breathing exercises; most of them like the instruction, and derive benefit from it.

Library.—As the result of a grant from the Public Health Committee, the wards are now provided with daily and weekly papers and magazines. We have also a number of volumes in the library, which are being increased from the grant made and by the addition of books sent by friends.

REPORT ON SALTERLEY GRANGE SANATORIUM.

(By Dr. E. G. Glover, Medical Superintendent.)

I beg to submit a report on the working of this Sanatorium for the year ending December 31st, 1917.

The capacity of the Sanatorium continued as in 1916 at 97 beds, whilst the system of double-bedded chalets, adopted in 1915, to increase accommodation, continued to be adhered to, thereby enabling sex-fluctuations in the waiting list to be dealt with by transference of single beds from the male to the female pavilions, and vice versa.

Admissions.

During the twelve calendar months ending 31st December, 1917, there were admitted 354 cases, of whom 235 were males and 119 females, and all of whom excepting 72 (26 males and 46 females) were insured cases.

These admissions show a decrease of 23 under those of the previous year and an increase of 6 over the admissions of 1915. Of 354 admitted 321 were sent direct from the Tuberculosis Centre and 33 (28 males and 5 females) were transferred from Yardley Road Sanatorium after a short period of observation there. During the year 39 old Sanatorium cases (33 males and 6 females) were re-admitted: all of these had been patients in Salterley Grange, except 5 males who had been treated in Yardley Road Sanatorium. These re-admissions constitute just over 11 per cent. of the total admissions, as compared with 6 per cent. for 1916. Two factors probably contribute largely to this notable increase in re-admissions. The Sanatorium has now been in existence for 9 years, and with each succeeding year about 350 cases are added to the list of those liable to a relapse; in the second place industrial conditions have become much more onerous, and the number of relapses within a short interval from the first period of treatment is distinctly more notable than before. Future reports may show whether the high re-admission figure is stable, but in any case it must be noted that this represents only those cases where the relapse was sufficiently slight to permit of their retention in the "early" or favourable groups. More serious breakdowns would, of course, be recommended to some of the other Sanatoria if not given domiciliary treatment.

Age-Incidence.

	Males.	Females.	Total.
10—15 years	4 ...	3 ...	7
16—20 „	25 ...	12 ...	37
21—30 „	82 ...	56 ...	138
31—40 „	89 ...	36 ...	125
41—50 „	33 ...	9 ...	42
51—60 „	2 ...	3 ...	5
	235 ...	119 ...	354

Fewer cases under 15 were admitted this year than last, largely because the sun-records were poor and the treatment of some gland conditions by heliography was not so extensively carried out. Otherwise the age-incidence percentages are very similar to those of former years.

Occupation.

Variety of occupation is always a feature of a town-population such as that of Birmingham, but detailed analysis has little special significance here. Speaking generally, of the 235 male patients 190 had an indoor occupation, and 45 were outworkers; 101 were metal-workers, and 34 directly concerned with the making of munitions.

Of the 119 female admissions 49 had no particular occupation apart from housework, whilst all the others except one were indoor workers; 23 were metal-workers, and 16 directly concerned in the making of munitions.

During the year 72 ex-soldiers were admitted, constituting 38 per cent. of all males of military age, as compared with 24 per cent. admitted the previous year. A note as to the condition of their disease will be found below.

Classification of Patients.

Group (Turban-Gerhardt).	Males.	Females.	Total.
I. Slight	63 ...	53 ...	116
II. Mod. advanced	146 ...	57 ...	203
III. Advanced	26 ...	9 ...	35
	235	119	354

The above groupings represent merely the preliminary estimations of the condition of disease based on first examinations at admission, and on this occasion no note is made of cases belonging to Group IV. (*i.e.*, cases found after admission to have obsolete lesions or proved to be non-tuberculous). Due notice of such cases, however, is taken in the records of condition on dismissal.

The group distribution of female cases is practically the same as in normal times: indeed, the percentages for each female group have remained surprisingly steady for several years past.

With regard to the male groups, there continues to be a notable increase in the admission of moderately advanced cases as compared with the admissions before 1915. This is due, as noted last year, to the distribution over this and other Sanatoria of male cases formerly sent to Yardley Road Sanatorium. There is, however, an improvement in this respect over last year's records: the number of early cases has increased by 20 per cent., and the number of advanced cases decreased by 40 per cent. All such groupings depend for their value on the meticulousness with which disease-areas are mapped out, and it is probable that the reason given above does not wholly account for the relatively small percentage of Group I. cases, in a Sanatorium which is on the whole reserved for early or favourable types of diseases. It is highly probable that many Group II. patients (*i.e.*, moderately advanced as judged by area examinations) are in reality just as favourable and have been diagnosed just as early as the typical Group I. case. This view is quite in keeping with modern ideas of tuberculous infection and resistance. The most satisfactory test is the number of Group III. cases admitted, and this, it will be seen, is extremely small, viz., 9·9 per cent. of all admissions. The Turban-Gerhardt grouping has many disadvantages as a means of classifying tuberculous patients both for diagnosis and for prognosis.

Classification of ex-Army Cases.

Group (Turban-Gerhardt).	In Training.	Foreign Service.	Total.
I. Slight	9 ...	14 ...	23
II. Mod. advanced	13 ...	28 ...	41
III. Advanced	3 ...	5 ...	8
	25 ...	47 ...	72

Average Duration of Service.

Group.	In Training.	Foreign Service.	Total.
I.	5 months.	18 months.	13 months.
II.	9 „	22 „	18 „
III.	6 „	25 „	15 „
Total (average)	7 „	21 „	16 „

Amongst those on foreign service 5 were former patients who completed on the average 23 months' service; of those breaking down in training 4 were old patients with an average duration of service of 6 months. In the report for 1916 it was noted that the numbers breaking down in

training and in foreign service were practically identical; on this occasion there is a notable disparity between the respective totals, which suggests that the weeding out of tuberculous recruits is more thorough than formerly. This weeding-out principle does not seem to apply so strictly to service conditions. There is practically no difference between the number of early cases discharged during training and during foreign service. The alternative conclusions suggested are either that early diagnosis is not a feature of army service or that early signs (spatially speaking) are not a feature of early tuberculosis. As far as Groups are concerned, the figures are identical with those of the previous year, unless to the extent that advanced cases are not quite so common. Judging from the patients' histories, whilst foreign service conditions are if anything slightly harder than before, especially from the point of view of trench ventilation, home conditions, even with hard physical training, are more satisfactory than formerly. Some foreign service cases note that the old open trenches, although badly drained, suited them better than the later dug-out systems. Speaking generally, there is nothing in these figures to suggest any modification in current views of resistance (taking this as the summation of factors tending to prevent the development of active disease). The results merely confirm the existence of wide variations in resistance with different cases.

As a rule the breakdown in the case of old Sanatorium patients was a very serious one, and greatly prejudiced their chances of final recovery.

Patients who have served in tropical climates exhibited a much more serious type of disease and showed signs of greatly depleted resistance.

Diagnosis on active service commonly dated from the occurrence of a hæmoptysis.

Of the 47 foreign service cases 13 had tubercle bacilli in their sputum on admission, and 9 gave a reliable report of a previously positive sputum; of 25 in training 6 had bacilli on admission and 2 a reliable report of a previous finding. Thus, at the very least 30 cases (22 F.S.; 8 T.) had had bacilli in their sputum, an indication merely that diagnosis is later in army than in civilian practice (*cf.*, bacillary records for all cases).

Dismissals.

During the same period 354 were dismissed, of whom 242 were males and 112 females.

In any attempt to estimate the results of treatment in a Sanatorium admitting cases chiefly drawn from an artisan population one factor is of the greatest importance, viz., duration of stay. Without some such correction all statistics may give an insufficient impression of the benefits of complete treatment.

The following table, giving the stay in months, should be taken into account in appraising all subsequent statistics: the effect can be more closely studied in the table referring to the condition of disease on dismissal.

Duration of Treatment.

Duration in Months.	Under 1.	1-2.	2-3.	3-4.	4-5.	5-6.	Over 6	Total.
Males	23	75	60	37	17	15	15	242
Females	2	25	28	18	14	12	13	112
Total ...	25	100	88	55	31	27	28	354

The average duration of treatment in days was 94·6 as compared with 86·2 for 1916, 84·2 for 1915, and 73·9 for 1914. It should be noted that, in spite of this fairly satisfactory average duration of treatment, there has been no shortage in beds available for early cases.

At no time during the year have early cases been debarred from immediate treatment owing to the demands of more advanced cases. Indeed, only in the autumn was there even what could be called a "waiting-list." No early case was refused extension of treatment during the year on account of lack of accommodation, although this seems to be one of the stock criticisms levelled at the usual methods of selection of cases for treatment.

During the year 49 cases left before the completion of the recommended period of treatment; 18 (M. 12; F. 6), left with permission, owing to domestic trouble; 25 (M. 17; F. 8) left without permission usually because they disliked the restrictions of sanatorium life or because in the winter months they found the cold too intense; 6 males (1·7 per cent. of all discharges) were dismissed for breaking rules.

In 1916 the total figure was 57, and the percentage discharged for breaking rules 3·7.

Making due allowance for duration of treatment, the following tables will give some idea of the immediate results of residence in the Sanatorium. The factors to be considered are given in order of prominence, the more immediate, and consequently the less important or permanent, coming first. These are as follows:—variation in weight, alteration in general health, in working capacity, in the results of sputum examination, in the condition of disease on dismissal, and the ultimate prognosis as estimated on discharge.

Weight.

Patients showing Increase in Weight.

	Increase in lbs.	Under 1.	1-3.	3-7.	7-14.	14-21.	21-28.	Over 28.	Total.
Male	Group I. ...	4	4	10	31	8	2	1	60
	Group II. ...	—	14	35	69	17	4	—	139
	Group III. ...	2	4	4	11	4	—	—	25
	Total ...	6	22	49	111	29	6	1	224
Female	Group I. ...	2	5	14	13	6	4	—	44
	Group II. ...	1	5	18	19	6	3	—	52
	Group III. ...	—	1	1	4	1	—	—	7
	Total ...	3	11	33	36	13	7	—	103

Percentage showing increase, 92·3 per cent. ; last year 92·5 per cent.

Weight Stationary.

Males, 8 (Gr. II., 6 ; Gr. III., 2) ; average stay, 3 days.
Females, 2 (Gr. I., 1 ; Gr. II., 1) ; stay, 5 days and 3 months.
Percentage stationary, 2·8 per cent. ; last year, 2·6 per cent.

Weight Lost.

Group I.	Males (lbs. $\frac{1}{2}$, 1, 9) ...	3	Females (lbs. 7)	1
Group II.	Males (lbs. $\frac{1}{4}$, $\frac{1}{4}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$)	6	Females (lbs., $\frac{1}{2}$, 1, $3\frac{1}{2}$, 4)	4
Group III.	Males (lbs. $1\frac{1}{2}$)	1	Females (lbs., $5\frac{1}{2}$, 7)	2

Total, 17. Percentage, 4·9 per cent. ; last year 4·8 per cent.

The percentages are identical with those of last year, and although there are not so many outstanding increases in weight, the average increase is slightly higher than before.

Early cases (Group I.) show the widest variations.

Greatest increase : Male, $29\frac{1}{4}$ lbs. (181 days) ; Female, 24 lbs. (41 days).

Only one of those whose weight remained stationary had stayed longer than nine days.

The average duration of treatment of those who lost weight was 3 months.

General Health.

	Males.				Females.			
Group.	Much Improved.	Improved.	*In statu quo.*	Worse.	Much Improved.	Improved.	*In statu quo.*	Worse.
I.	34	25	3	1	20	22	4	—
II.	66	70	15	—	16	36	4	1
III.	11	14	2	1	4	3	—	2
Total ...	111	109	20	2	40	61	8	3

After slight increase in weight, improvement in general condition is the most notable feature of sanatorium results. This improvement is, however, of little use as a guide to ultimate results, although on the whole it is associated with some degree of improvement of the diseased lung. The above table should be compared with that showing alteration in the lung conditions.

Working Capacity.

Males.					Females.				
Group.		A*	B	C	Group.		A	B	C
I.	Admission	8	53	2	I.	Admission	12	33	1
	Dismissal	57	5	1		Dismissal	39	7	—
II.	Admission	16	133	2	II.	Admission	9	47	1
	Dismissal	119	32	—		Dismissal	50	6	1
III.	Admission	—	24	4	III.	Admission	1	8	—
	Dismissal	9	14	5		Dismissal	4	2	3
All Cases	Admission	24	210	8	All Cases	Admission	22	88	2
	Dismissal	185	51	6		Dismissal	93	15	4

* A—Unimpaired. B—Impaired. C—Incapacitated.

Although not a safe guide to ultimate results of treatment, the above table is the most important of all from the point of view of those who look for some immediate economic return for Sanatorium expenditure. It has become increasingly common of late for both critics and supporters of Sanatorium practice to judge the latter solely on the statistics of ultimate arrest. This attitude is not only illogical—immediate results can only be judged as immediate results and ultimate results depend largely on extra-Sanatorium conditions and treatment—but it ignores entirely and most unjustifiably the immediate return to the State in the form of increased and often normal working capacity.

Only 13 per cent. of those admitted were in a fit state of health to carry on their ordinary occupation, and even then with a reasonable expectation of breakdown in the immediate future; on discharge 78 per cent. were capable of following their usual employment, most of them for the greater part of a year, and a considerable number for a much longer period.

Only 18 per cent. were discharged with impaired working capacity, as compared with 84 per cent. impaired on admission. Even these impaired cases are capable of earning a living at some lighter occupation or as "half-timers" at their original trade, whilst there is a gratifying return to normal working capacity of advanced cases of which it is often said (erroneously) that they never repay Sanatorium treatment. That many of these will become incapacitated is quite true, but in the meantime they have at least gained breathing space in which to make partial preparation for that incapacitation. The above percentages apply only to cases selected on the whole as "favourable," but, on the other hand, they are not corrected for duration of treatment. They show a slight improvement over the results for 1916, with which alone they are comparable, as in 1915 and before there was no influx of moderately advanced cases with a relatively poorer working capacity on admission. It has to be noted that more patients regained normal working capacity than came under the heading of "much improved" in the table showing alteration in general health, whilst on the other hand more in proportion were incapacitated on discharge than came under the heading of "worse" general health.

Results of Sputum Examinations.

Group		T.B. +		T.B. −		No Sputum.	
		Males.	Females.	Males.	Females.	Males.	Females.
I.	Admission	9	4	39	17	15	25
	Dismissal	3	1	37	10	23	35
II.	Admission	29	9	99	26	23	22
	Dismissal	25	1	94	14	32	42
III.	Admission	13	3	10	4	5	2
	Dismissal	18	3	4	3	6	3
All Cases	Admission	51	16	148	47	43	49
	Dismissal	46	5	135	27	61	80

From the point of view of bacillary loss, the above table requires some amplification. Many of the cases without bacilli, or without sputum at the first examination on admission, are found to have a positive sputum after more careful subsequent examination. The following figures give a more correct idea of the actual improvement from the bacteriological standpoint.

Group.	O becoming T.B. +		T.B. − becoming T.B. +		T.B. + becoming O.		T.B. + becoming T.B. −	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
I.	—	—	2	—	—	2	8	1
II.	1	1	17	1	5	7	17	3
III.	—	1	8	1	—	1	2	1
Total ...	1	2	27	2	5	10	27	5

The following table shows the actual bacillary loss in each group :—

	Males				Females.				All Cases.
	I.	II.	III.	Total.	I.	II.	III.	Total.	
TB+ on Admission	11	47	21	79	4	11	5	20	99
TB+ on Dismissal	3	25	18	46	1	1	3	5	51

The noteworthy features of the foregoing tables are as follows :—

Percentage of all admissions with TB+(males) =32·6% } =27·9%.
(females) =17·8% }

Percentage of TB+ cases becoming TB− or O (males) =41·7% } =48·4%.
(females) =75% }

The following table affords some standard of comparison :—

Year.		Males.	Females.	Total.
1915	Bacillary Loss	46%	42·1%	45·39%
1916	,, ...	40·9%	60%	43·7%
1917	,, ...	41·7%	75%	48·4%

The striking feature of this table is the high percentage of bacillary loss amongst female patients. Last year a similar high percentage was regarded as an abnormal factor owing to the small number of female patients with bacilli on admission (in 1916 only 11·5 per cent. of the women had bacilli in the sputum); on this occasion the percentage having bacilli is greater, yet the figures for bacillary loss are considerably higher. It will be noted also that not only are there more women than men admitted without sputum, but of those women losing bacilli the majority lose their sputum altogether.

These figures tend to bear out the fact that with women the course of the disease is and tends to become more favourable than with men. As has been already stated, the group incidence of the female cases has remained surprisingly steady for some years back. On the other hand, the reduction in bacillary loss with male patients during the past two years coincides with an increase in the numbers of moderately advanced cases admitted. In spite of this fact, and even excluding as possibly abnormal the figures for women, the percentage of bacillary loss amongst men is much higher than that for other Sanatoria reserved for early or favourable cases, which, as pointed out last year, runs from 25 per cent. to 30 per cent., the methods of examination being identical (i.e., frequent ordinary film examinations).

These results are, of course, for all bacillary cases whether completing treatment or not; if we exclude altogether those cases leaving within a month of admission (and the majority of such cases left within a few days), the percentage of bacillary loss amongst males rises from 41·7 per cent. to 47 per cent., the percentage for women remaining stationary.

The results of sputum examinations are of cardinal importance in appraising the value of Sanatorium treatment. Probably the most of those with no sputum throughout their stay will ultimately become permanently arrested; of those with no bacilli in their sputum during treatment possibly over one-half will become healed, although at a later date. The prospects of patients whose sputum changes from positive to negative during treatment are also good; rather under one-half will probably become arrested, although a much more extensive period of after-treatment will be necessary. The results in the case of those whose sputum remains positive throughout treatment are the least satisfactory, although in this connection it is highly instructive to compare the bacillary records after a short period of Sanatorium treatment with those given for the Tuberculosis Centre for all bacillary cases which have completed the full course. The foregoing statements are, of course, mere approximations, and are subject to numerous qualifications both as regards previous and after history. For instance, in the above tables 18 cases, male 14 (Gr. I., 5; II., 8; III., 1), females, 4 (Gr. I., 2; II., 2), are entered as "with negative sputum," who actually had some time before been positive cases, and this number would have been increased had accurate records been available for all the ex-army cases. One of the most notable features in Sanatoria admitting from artisan populations is the rapidity with which many cases lose their bacilli either while waiting for admission or shortly after admission, i.e., without any systematic treatment beyond perhaps giving up work and following out a few simple rules of hygiene at home. This was particularly observed with some ex-army cases. In spite of insufficient records, it was ascertained that 30 at least out of 72 had a positive sputum, yet on admission only 19 of these gave a positive finding. It does not necessarily follow that all of these cases could have dispensed with any treatment.

It is, however, arguable that in some instances the return to civil life would have been in itself sufficient to cause complete arrest, but in any case this rapid loss of bacilli goes to corroborate in part the findings of many writers who have recently emphasized the existence of an extremely benign, or, as they call it, "abortive" type of tuberculosis.

CONDITION OF DISEASE ON DISMISSAL.

LUNG CONDITION.	MALES.				FEMALES.				ALL CASES.
	I.	II.	III.	Total.	I.	II.	III.	Total.	
Much improved	32	24	2	58	17	9	3	29	87
Improved	27	97	19	143	26	43	1	70	213
In statu quo	4	30	6	40	3	4	2	9	49
Worse	—	—	1	1	—	1	3	4	5

The above categories require some slight explanation. The term "much improved" is strictly reserved for those who are either presumably arrested at the time of dismissal or are likely to become so arrested within a few months afterwards. Of the 87 noted as much improved, 44 (Males, Gr. I., 18; Gr. II., 8=26: Females, Gr. I., 14; Gr. II., 3; Gr. III., 1=18) were almost certainly arrested on dismissal and the remainder were extremely likely to follow suit within a short period. The group "improved" includes many who were very considerably better than on admission, but of whom it could not be said with certainty that they would become arrested within six months. It also includes many whose improvement would only be temporary. The group is in a way an unsatisfactory one, but all the cases included had one point in common, viz., in spite of greater or lesser improvement they still presented unequivocal signs of active foci, concerning the progress of which dogmatic prognosis was impossible. In spite of the strictness of this classification, the results are very satisfactory. The numbers of those probably or certainly arrested show a marked increase over those of 1916, the selection of cases being the same, and approximate closely to those of 1915, when the selection of cases was more rigid.

Throughout the report emphasis has been laid on the influence of duration of treatment on the various tables; this is seen to a notable extent in the results under consideration. The following table shows this clearly:—

DURATION IN MONTHS.	MALES.							FEMALES.						
	1.	1-2.	2-3.	3-4.	4-5.	5-6.	Over 6	1.	1-2.	2-3.	3-4.	4-5.	5-6.	Over 6
Much improved	—	10	15	12	7	9	5	—	3	4	6	2	5	9
Improved ...	4	53	43	22	10	4	7	—	19	20	11	11	7	2
In statu quo ...	19	11	2	3	—	2	3	2	3	2	1	1	—	—
Worse	—	1	—	—	—	—	—	—	—	2	—	—	—	2

It will be seen that a considerable number of those leaving *in statu quo* had not completed even the preliminary period of recommended treatment, and in fact only 6 per cent. of the total admissions had really not shown any notable alteration in physical signs. The figure for 1916 was 4 per cent. Generally speaking, the improvement in male cases is more rapid than in female patients, a natural consequence of the method of selection, but in both instances the number coming within easy reach of arrest is greater amongst those who had completed at least 3 months' treatment. It is possible that had some of those been discharged under 3 months, they would have been grouped as much improved, but it is clear from the number merely "improved" whose duration of treatment was under 3 months, that a period of 3-4 months at least is a suitable one for the majority of patients.

ULTIMATE PROGNOSIS.

With the information previously recorded it is possible to give a rough idea of the probable course of the disease amongst those discharged.

	Males.		Females.		Total.
Ultimate arrest probable	138	...	72	...	210
Fatal termination probable	40	...	10	...	50
Result doubtful	64	...	30	...	94

These prognostications are based merely on personal observation of the types of disease and their reaction to appropriate treatment. They do not pretend to any finality, and many of them will be upset in one way or another during subsequent treatment, and for various reasons, of which duration of treatment, housing and factory conditions, feeding, etc., are the most important. Finally, it must be noted that the results apply only to selected cases of a more or less favourable type.

Correction for Error in Diagnosis.

From two points of view it is necessary to correct all Sanatorium statistics for error in diagnosis. In the first place it might be said that statistics of arrest are inflated by the inclusion of cases which are either already arrested or actually non-tuberculous, and in the second, the criticism might be advanced from the economic point of view that the Sanatorium is doing a good deal of unnecessary work.

In the present instance the former criticism does not hold, because, taking only bacillary cases into consideration, the improvement indicated by loss of bacilli is notably above the average. The second point is much more difficult to deal with, inasmuch as the irrefutable evidence of the presence of bacilli in the sputum (a rough and ready army standard, by the way) is wanting. Actually, 72 per cent. of all admissions had negative sputa. Unfortunately, time did not permit of these being sedimented, otherwise about one-third to one-half more might have been found positive than actually were positive by ordinary film methods.

The only means, then, of dealing with the point is to find out the number of non-bacillary cases in which the diagnosis was certain *beyond cavil*, and to compare the physical signs in these cases with those found in the other patients with negative sputa. This can be done by adding to the bacillary cases, all non-bacillary cases with a trustworthy record of a previous find, all non-bacillary re-admissions, all non-bacillary advanced cases (Gr. III.), and all non-bacillary cases diagnosed after observation or after being tested with tuberculin. This gives the following result:—

	Males.			Females.		
	I.	II.	III.	I.	II.	III.
T.B+ on Admission	11	47	21	4	11	5
T.B+ before Admission (corrected)	4	5	—	2	1	—
Advanced Cases (corrected) ...	—	—	7	—	—	4
Re-admissions (corrected)	2	9	—	1	3	—
Observation Cases (corrected) ...	15	6	—	1	—	—
Total	32	67	28	8	15	9

It will be seen that with 127 males (52 per cent. of all admissions) the diagnosis was beyond all possibility of dispute; yet 48 of these (37 per cent.) had negative sputa. The corresponding figures for female patients are 32 (28 per cent. of all admissions) and 12 (37 per cent.) with negative sputa. When we come to investigate the physical signs (to exclude all other evidence) in all non-bacillary cases, it appears that there is nothing to distinguish the "certain" diagnoses from those open to question. In fact, there is less difference between the bacillary positives and the non-bacillary positives than there is between the non-bacillary positives and observation positives. On the whole, then, it may be said that if there is any means of excluding non-bacillary cases from treatment, these do not include physical examination or sputum investigation, which, by the way, constitute the main diagnostic routine for every tuberculosis scheme in the country. It may be added that in the present instance the difficulty, if any, lies not so much with the early case, as a number of these are kept under observation in Birmingham before admission, but with the more advanced cases where the physical signs are so unmistakable as to render preliminary observation superfluous. It is, of course, possible, indeed probable, that had all the unobserved non-bacillary cases been subjected to a routine investigation, including sedimentation examinations, X-ray examination, tuberculin testing, and serum investigations, a certain proportion of them would have been found to be either arrested or non-tuberculous, but even then, knowledge of the rapidity with which bacillary cases may heal should serve as a warning against too cavalier treatment of presumably arrested non-bacillary cases.

Reviewing the non-bacillary cases, it may be said that the most severe investigation could not have succeeded in excluding at the outside more than 16 males and 12 females. As a matter of fact, observations made during the year suggest that 6 males (Gr. I., 4; Gr. II., 2) and 7 females (Gr. I., 6; Gr. II., 1) were probably negative, 2 of them (males) being almost certainly non-tuberculous, and the others probably arrested on admission. Due correction should therefore be made for these figures in the arrested column.

It should be added that if a large number of admissions could be proved to be arrested or non-tuberculous, current ideas as to early diagnosis (from the point of view of physical signs) would have to be radically altered.

Treatment.

Of 354 cases discharged 272 (183 males and 89 females) received Tuberculin treatment, *i.e.*, after deducting those who discontinued treatment shortly after admission, and excluding those where, owing to fever or advanced disease, Tuberculin was contra-indicated, practically all cases commenced a course of injections.

As before, the variety of Tuberculin given was Koch's P.T.O., in order that after dismissal the patient might continue on a pre-arranged course at the Tuberculosis Centre. Several of the patients stayed long enough to complete the course of P.T.O. (*i.e.*, 1cc. undiluted tuberculin), and a few had made satisfactory progress with P.T. The results of Tuberculin treatment cannot be estimated at the end of a short course of Sanatorium treatment: they must be looked for in the after-histories of cases completing treatment at the Tuberculosis Centre. Where immediate results were looked for, as in the reduction of some chronic pyrexias, they were as satisfactory as formerly.

During the year some alteration was made in the system of graduated exercise. Formerly, four hours' heavy gardening per day was the maximum exercise given. Now, by a system of careful selection, about 18 patients are given much heavier grades of labour and correspondingly less rest.

About 12 selected cases are put on five hours' heavy gardening, and for a week or two prior to discharge, should they have stood the five-hour grade well, are given a test-grade of seven hours' gardening per day, with a minimum of rest except before and after meals.

The results have been eminently satisfactory. The effect of the seven-hour grade on weight is either to reduce it by at the most 2lbs. or, on the other hand, to increase an already stationary weight by several pounds. The numbers losing and gaining are approximately equal. The relation of heavy grades to the toleration of tuberculin is interesting. It is generally supposed, although not by any observers familiar with Dispensary Tuberculin treatment, that injections can only be given to working patients with the most extravagant precautions as to rest, etc. The observations made during this year do not confirm this impression. It is no uncommon thing to see patients who have had or still have bacilli in the sputum taking large doses of undiluted tuberculin up to 1 cc., and continuing during the same day at the seven hours' grade, without any general reaction whatsoever.

The advantages of a seven-hour grade to patients who are returning perforce to a full day's hard factory work are obvious. Unfortunately, only about ten per cent. of any one series of admissions are able to reach this grade before discharge, although the great majority are able to reach the five-hour grade.

Experiments with sun-treatment were continued during six months of the year. Unfortunately, the sun-records were again poor, and little satisfactory work was done. A few cases completed the full course, *i.e.*, complete exposure of the body from 1-2 hours daily, but none of the others stayed long enough to get any real benefit from the treatment. The results varied. One case with multiple sinuses made astonishing progress, but with others the results were indifferent.

REPORT ON WEST HEATH SANATORIUM.

(By Dr. A. G. Campbell, Medical Superintendent.)

In submitting the annual report of the working of the above Institution, one is forced to the conclusion that there is very little that can be introduced into it that would be considered of scientific interest. Indeed, it may be said to be an accumulation of facts and observations that have been considered noteworthy. During the period under consideration the number of beds on the male side have been increased by 22, so that at the end of the year there was accommodation for 80 patients, *i.e.*, 60 male and 20 female. The number of cases admitted was 199—148 male and 51 female, 59 of the males being discharged soldiers.

Some of this group were sent direct from various military hospitals, and the majority of them belonged to various regiments recruited mainly from the Midlands.

The number discharged was 119, *i.e.*, 90 male and 29 female—34 of the males being discharged soldiers.

The number of deaths was 67—47 male and 20 female. Included in this number are 19—13 male and 6 female—which were admitted during the preceding year, so that 48 of the cases, *i.e.*, 34 male and 14 female, admitted during 1917 died within the same period, which represents 24 per cent. of the cases admitted.

The average death-rate based on the number of cases treated amongst all ages and both sexes is 28 per cent. This may be considered a high death-rate if not viewed from a proper standpoint. It may be stated that this institution represents the connecting link, as it were, between the clinical side of the scheme on the one hand and the preventive side on the other hand.

From the clinical side cases are admitted which reveal an advanced type of disease, where the question of arrest, and in many cases of even temporary recovery, is unlikely, and therefore are not fit subjects for the other institutions that exist for earlier cases. At the same time it must be noted there are some amongst this class which are sent in with a view to lengthening their life and with a possibility of raising their general condition and resistance. The vast majority of those discharged is of this type, which is 60 per cent. almost of the cases admitted, and on the whole must be considered satisfactory.

From the preventive side cases are admitted where the environments of the patients are of such a kind that their rôle as infective agents is at a maximum, and the care and attention that such patients need are at a minimum.

From the foregoing it can be deduced that amongst such a class the death-rate must be high, and, indeed, one may venture to say that under the present social conditions that exist amongst these, if the death-rate were not high, then the Institution would not be fulfilling the purpose for which it was brought into existence. It is quite logical to suppose that if X per 1,000 of the population die of pulmonary tuberculosis in the year under insanitary and unhygienic conditions, where the possibility of spreading the infection is very great, then the greater the percentage of X that die in an institution of this kind, where all precautionary measures are taken, the better it will be for the State. Taking these facts into consideration, the death-rate is not to be wondered at. In looking through the clinical history of the cases admitted during the year, it is noticeable that over 86 per cent. of them came under the influence of the Centre for the first time as advanced cases in the III. stadium. The majority of these had bacilli in their sputum. Many of them were so ill that their primary examination had to be made at their own homes. The thought that naturally arises in one's minds is—can other means and arrangements be adopted or made whereby these cases could be seen at an earlier stage, and when there may be some chance of doing permanent good? and at the same time curtailing, and in some cases cancelling, the rôle that many of them play as infective agents. The question is worthy of earnest consideration. It is also to be noticed that out of the total cases admitted there are only 36 who were at other Sanatoria, and these cover a period of four years, 1913-1917. Included in this number, it should be noticed, are some who were at Yardley Road Sanatorium on probation as advanced cases. Regarding the mode of onset, nothing fresh can be gathered from the clinical histories. It is so varied and so complex in its nature as to rule out the possibility of getting up a set of symptoms that could be labelled "The precursors of the disease."

Discipline.

Regarded on the whole this has been fairly good. At the same time the difficulty of maintaining it has been increased during the past year, partly due to the number of discharged soldiers who have come into our midst. Some of these resent in a greater or lesser degree the routine of the institution. Many have come from different Military Hospitals, where they had almost uncontrolled liberty, and where the routine differs somewhat from that of Sanatoria. Apart from this there are some who are by temperament unsuitable for institutional life. Few cases, however, have had to be dismissed either for disobedience to instructions or breaking the rules.

Treatment.

This, so far as hygiene and dietary are concerned, is much the same as in other Sanatoria, but the ideal open-air life cannot be carried out so extensively as in those institutions which take in earlier cases. These advanced types of cases show a great sensitiveness to change of temperature, and it is found that the "Tempering of the wind to the shorn lamb policy" is the best to adopt so far as open-air treatment is concerned. Specific treatment, such as the administration of sera and vaccines, is found to be unsuitable in the majority of cases, and is therefore not carried out. Drug treatment, when such is indicated, is administered on symptomatic lines, and generally with a palliative end in view. Graduated labour and rest is the general rule amongst all suitable cases.

From time to time brief talks are given to the patients, both in a general and personal way, with an educative end in view, on the importance of open-air and sunshine, proper hygiene and environments, the collection and destruction of sputa, and the prevention of conveying infection by spray due to coughing, together with the reasons for such measures.

Age and Sex Distribution.

	Males.						Females.					
	Under 18 yrs.	18–25 yrs.	26–35 yrs.	36–45 yrs.	46–55 yrs.	Above 55 yrs.	Under 18 yrs.	18–25 yrs.	26–35 yrs.	36–45 yrs.	46–55 yrs.	Above 55 yrs.
Patients under treatment Jan. 1st, 1917 ...	3	3	8	12	10	3	2	—	7	4	3	2
Patients admitted during 1917	3	28	36	52	18	11	4	11	15	14	4	3
Patients discharged during 1917	2	15	24	31	14	4	4	2	10	11	—	2
Patients died during 1917	2	12	6	20	5	2	1	3	6	4	4	2
Patients under treatment Jan. 1st, 1918 ...	2	4	14	13	9	8	1	6	6	3	3	1

It will be seen from the foregoing that the greatest number of discharges were, amongst both sexes, under the age period 36-45 years. Based on the number of cases treated, the discharge rate per cent. for males is highest under the age period 26-35 years, and = 54·5 per cent.; for females it is highest under the age period 36-45 years, and is 61 per cent. The death-rate on the same basis is highest for males under the age period 18-25 years, for females it is highest under the age period above 55 years.

Dismissals.

Of the 119 discharged 79 went out improved, 63 male and 16 female; 41 took their discharge without any improvement, 27 male and 14 female. Included in this number are 14 who did not remain their full time, and therefore went out against medical advice, and these, with two exceptions, were all of the male sex.

Number of Days in Hospital.

Average for males = 83 days.

Average for females = 102 days.

The problem of getting patients to remain in the institution for a period that will enable them to be discharged with some hope of being self-supporting, and in some cases as an earning unit, is a perplexing one, and the year 1917 has increased it to a great extent. This is mainly due to the demand for human material on the labour market, with its ever-increasing financial attraction, coupled with the higher cost of living amongst those with domestic responsibility. Hence the difficulty that has been experienced in keeping the married males when they feel that they have made some improvement. Taking into consideration, however, that the patient's stay in the institution is a voluntary one, the above figures as an average should be considered satisfactory.

Weight.

	Males.	Females.
Gained weight	63	19
Stationary	9	6
Lost weight	18	4
Maximal gain in lbs.	22½ (81 days)	21lbs. (96 days)
Average gain in lbs.	11	8·5

It must be understood that amongst those gaining weight are some who only remained for a short time. These collectively have been a factor in reducing the average gain in both sexes.

All the foregoing may be said to be dealing purely with what may be called the medical side of the work, and it may be considered that a general report from an institution of this kind would not be complete without dealing in a minor degree with the social side.

Social Side.

Speaking generally, the atmosphere amongst patients suffering from acute disease and in a low physical condition is often abnormal, and in many cases there is evidence of mental warp. The tendency to become despondent and to mope is very strong, and unfortunately is very infective. It is under such conditions that suitable recreations play an important part, bringing into a dull and depressing atmosphere some rays of social sunshine. The Committee dealing with public health have generously provided all sorts of suitable games, both of an indoor and outdoor nature. The wards are provided with books, papers, and magazines. During the latter part of last year the Birmingham Insurance Committee presented the Institution with a full-sized billiard table, and this has been a constant source of enjoyment to the patients from time to time. During the winter season a series of concerts were given, and have been the means of providing many enjoyable hours to all concerned. It is found that all the foregoing, when properly controlled, play some little part in toning up the mental side of the patients, and this is often reflected by their trying to overcome the tendency to look on the dark side of life, and to take courage and hope for the future, so fitting themselves to make a better fight against the enemy that is trying to overcome them.

REPORT ON ROMSLEY HILL SANATORIUM.

(By Dr. Picard, Temporary Medical Superintendent)

Owing to the absence of the Medical Superintendent, Dr. Allan, on military duty, it has not been possible to furnish a full report of the working of Romsley Hill Sanatorium for the year 1917.

The total number of new cases admitted was 688, of whom 621 came from Birmingham.

The following statistics refer only to the patients from Birmingham:—

	Males.	Females.
Number of patients resident January 1st, 1917	57	14
Number of patients admitted during the year	467	154
	524	168
Number of deaths during the year	11	9
Number of patients resident January 1st, 1918	57	20

The stages of disease of patients admitted, according to Turban's Classification, are shown as follows:—

	Stage I.	Stage II.	Stage III.
Males	59	195	213
Females	16	70	68
	75	265	281

The age incidence of the patients admitted is as follows :—

	Under 15 years.	16-20.	21-30.	31-40.	41-50.	51-60.	Over 60.
Males	9	50	117	173	82	28	3
Females	3	20	61	47	21	6	1
	12	70	178	220	103	34	4

The sputum analysis of the 621 cases admitted during the year is as follows :—

	T. B. +	T. B. −	No Sputum.
Males	214	232	21
Females	49	78	27
	263	310	48

Tuberculin was administered to 112 males and to 54 females.

The following table shows the condition on discharge of the 621 patients admitted :—

	Improved.	Not Improved or Worse.	Discontinued treatment.	Died.
Males	309	115	32	11
Females	106	40	8	0
	415	155	40	11

The average duration of stay was 59·7 days.

The number of patients who gained in weight was 543; the average gain being 8·95 lbs.

TUBERCULOSIS AND THE MILK SUPPLY.

(Report by Mr. John Malcolm, M.R.C.V.S., Veterinary Superintendent.)

I have pleasure in submitting herewith a short report on the work done last year in connection with the inspection of cows and cowsheds in the city, and the efforts to minimise the degree of tubercle infection in the Birmingham milk supply.

Inspection of Cows and Cowsheds in the City.

During the year 1917 the inspection of cows and cowsheds has been systematically carried out by the Veterinary Officers as heretofore. Again fewer visits have been made than in previous years, owing to the depletion in the Veterinary staff.

The numbers of cowkeepers, dairy farms, sheds and cows in the city at the end of the year were as follows :—

Cowkeepers.	Dairy Farms.	Sheds.	Cows.
134	181	357	2,176

There were no dairy herds on forty of the 181 dairy farms at the end of the year.

During the year five farmers have commenced and fifteen farmers have discontinued cow-keeping. Three dairy farms have been made, one by the owners of one dairy farm purchasing the two adjoining farms. One dairy farm has been purchased by Government, and the land is now being used for building purposes.

1,410 visits of inspection have been paid to cowsheds in the city area. At each visit the cows were also examined. During the latter part of the year five farmers had requested to be allowed to keep dairy cows in unregistered sheds during the period of the war, and in each case their sheds have been temporarily registered.

One new cowshed has been erected and five buildings have been converted into cowsheds.

Twenty cows were found affected with catarrhal mastitis or catarrhal inflammation of the udder, and five with emaciation. In four of the latter cases the emaciation was due to anæmia and in the sixth case to tuberculosis. The milk of all these cows was prohibited from sale, either temporarily or permanently, according to the case.

The labour problem has again been a very difficult one on the farms during the year. With one or two exceptions the farmers have made every effort with the labour at their disposal to keep the cows and cowsheds clean, and the sanitary condition of the cows and cowsheds therefore has been on the whole satisfactory.

Tuberculosis and the Milk Supply.

The effort to reduce the amount of tubercle infection in the milk sold in the city has been continued on the lines of previous years, viz. :—

(*a*) The detection of infected milk;

(*b*) The detection of cows with tuberculosis of the udder or others giving infected milk;

(*c*) The eradication of tuberculosis from dairy herds supplying milk to the city

Infected Milks.

During the year 118 samples of milk have been collected as follows :—

	Farms in City Area.		Farms Outside.		Railway	
	Mixed.	Individual.	Mixed.	Individual.	Station.	Total.
Free	8	12	8	20	45	93
Infected ...	1	5	4	7	8	25
Total ...	9	17	12	27	53	118

Individual samples of milk were collected from forty-four cows, twelve of which proved to be affected with tuberculosis of the udder. These cows were immediately isolated from the dairy herds and their milk at once prohibited from sale; eleven of these cows were subsequently slaughtered. One, a valuable pedigree cow in calf has been isolated, and is being kept alive for the time being in the hope that the calf, at birth, may prove free from tuberculosis, in which case it will be isolated from the mother and reared on tubercle-free milk.

Five of the twelve infected cows were found in city dairies and seven in outside dairies.

Compensation to the amount of £11 10s. has been paid to three dairy farmers for the slaughter of four of the infected cows.

Eradication of Tuberculosis from Dairy Herds.

During the year twenty-five herds were being tested, and at the end of the year twenty-two herds numbering 692 cows were free, and three herds, numbering 57 cows, were being freed. Owing to war-time difficulties of labour, and to the present difficulties in connection with the purchase of tubercle-free cows, the testing of three herds, numbering 79 cows, has been discontinued during the year. It is arranged that the question of again dealing with these herds is to be considered after the war.

It has to be recorded that the Government for the first time has this year differentiated between the price to be paid for milk from cows certified as being tubercle free and that to be paid for milk not so certified, and all Birmingham dairymen whose herds have been certified as tubercle free are now obtaining the higher price for milk.

No.	Approximate No. of Cows in Herd.	Herds being dealt with during 1917.	Herds Free.	Herds being Freed.	Br'ding Herds.	Non-br'ding Herds.	Mixed Br'ding & Non-br'ding Herds.	City Dairies.	Outside Dairies.	Discontinued
1	19	1	1	—	1	—	—	—	1	—
2	12	1	1	—	1	—	—	—	1	—
3	14	1	1	—	—	—	1	—	1	—
4	4	1	1	—	—	1	—	—	1	—
5	27	1	1	—	—	—	1	—	1	—
6	4	1	1	—	—	1	—	—	1	—
7	14	1	1	—	1	—	—	1	—	—
8	20	1	1	—	—	—	1	—	1	—
9	10	1	1	—	—	1	—	1	—	—
10	35	1	1	—	—	1	—	1	—	—
11	40	1	1	—	—	—	1	—	1	—
12	20	1	1	—	—	—	1	—	1	—
13	17	1	1	—	—	1	—	1	—	—
14	113	1	1	—	—	—	1	1	—	—
15	16	1	1	—	—	—	1	—	1	—
16	25	1	1	—	1	—	—	—	1	—
17	52	1	1	—	1	—	—	—	1	—
18	98	1	1	—	1	—	—	—	1	—
19	22	1	1	—	1	—	—	—	1	—
20	38	1	1	—	1	—	—	1	—	—
21	15	1	1	—	—	—	1	—	1	—
22	22	1	1	—	—	—	1	—	1	—
23	36	1	—	1	—	—	1	—	1	—
24	25	1	1	—	—	—	1	—	1	—
25	47	1	1	—	1	—	—	—	1	—
26	45	—	—	—	—	—	—	—	—	1
27	30	—	—	—	—	—	—	—	—	1
28	4	—	—	—	—	—	—	—	—	1

Cow Testing.

The testing of the above herds has been carried out half-yearly.

From the tabulated list it will be seen that 1,423 cows were tested during the year, of which 1,233 passed and 190 failed to pass.

No.	Cows Tested.	Passed.	Failed (Reactors and Doubtful).
1	19	19	—
2	12	12	—
3	14	11	3
4	—	—	—
5	53	47	6
6	4	4	—
7	26	25	1
8	46	44	2
9	6	6	—
10	18	15	3
11	89	83	6
12	58	49	9
13	46	35	11
14	222	204	18
15	38	34	4
16	25	24	1
17	90	88	2
18	180	173	7
19	43	43	—
20	76	68	8
21	37	35	2
22	44	42	2
23	74	33	41
24	41	29	12
25	117	98	19
26	45	12	33
	1,423	1,233	190

The cows which failed were again in most cases cows which were purchased subject to passing the test, and having failed were returned to the vendor. The doubtful reactors already in the herd were isolated and re-tested a month later; about fifty per cent. of these eventually passed. The newly purchased and other cows tested for the first time last year numbered 280. Of these 37, or 13·21 per cent., reacted, and 17, or 6·07 per cent., were doubtful, *i.e.*, 19·28 per cent. failed to pass the test, as compared with 25·84 per cent. last year.

Cost Incurred by Testing Herds.

The testing of the herds has continued to be carried out, partly by the Corporation Veterinary Officers and partly by local Veterinary Surgeons on behalf of the Corporation. The cost of this work during the year was £133 17s. 10d., of which £38 10s. was for tuberculin and £95 7s. 10d. for veterinary fees and expenses. In 1916 the cost was £189 3s. 4d., and in 1915 £115 14s. 7d.

VENEREAL DISEASES.

There were 48 deaths recorded as due to these diseases, as compared with 56 in 1916 and 44 in each of the years 1915 and 1914. Unfortunately, these figures give no adequate idea of the damage done to the community by syphilis and gonorrhœa. It is probable that it may not be possible ever statistically to record the damage done. The very elaborate and expensive treatment now provided at the public expense will never give figures of the whole damage.

Prior to the present war medical opinion was quite general that the prevalence of these diseases in Birmingham was less than in most of the other large towns. Such opinion is equally positive that the amount of disease due to these causes is three or four times as large now as it was before the war.

It is possible to compare the few registered deaths in Birmingham with those for England and Wales so far as syphilis is concerned.

DEATH-RATE FROM SYPHILIS PER MILLION LIVING.

	Birmingham.	England and Wales.
1913 and 1914	51	59
1915 and 1916	51	54
1917	50	—

In some of the causes of death mentioned below syphilis plays a most important part.

	Deaths in 1917.
Aneurism	14
Cerebral Hæmorrhage	485
General Paralysis of the Insane	58
Arterio-Sclerosis	152
Total	709

From the above causes the death-rates in Birmingham and in England and Wales have been as follows:—

	Birmingham (per 100,000).	England and Wales (per 100,000).
1913 and 1914	790	925
1915 and 1916	821	1,026
1917	790	—

TREATMENT OF VENEREAL DISEASES.

In July, 1916, a memorandum setting out the Government's scheme for the free treatment of these diseases was received. This was immediately submitted to the Public Health Committee, who acquiesced in the suggestion that the two large teaching hospitals should be asked to undertake the work, the whole expense being borne by the City Council. One of these institutions agreed, while the other refused.

Subsequently, the Skin and Urinary Hospital and the Women's Hospital were asked to undertake part of this work, in addition to the General Hospital, and both assented.

It proved to be really difficult to complete the necessary arrangements, and as a result free treatment was not commenced until November 9th, 1917, at the General Hospital, and on November 1st, 1917, at the Skin and Urinary Hospital. The Women's Hospital had commenced about six months earlier.

A new departure such as this requires to be made widely known. This has been accomplished by the lecturers selected by the Birmingham Branch of the National Council for Combating Venereal Diseases, who have given no less than 155 lectures and addresses. Further information as to the times and places for treatment have been made known by a wide distribution of leaflets to people who were likely to be asked for such information. Notices have also been put up in the public lavatories of the city.

The result of all this has been that the General Hospital and the Skin and Urinary Hospital together have treated up to March 31st, 1918, 377 new cases of syphilis, 4 of soft chancre, and 179 of gonorrhœa. Of the syphilis cases 230 were males and 147 females, while of the gonorrhœa cases 157 were males and 22 females. Fifty patients suffering from syphilis and 40 suffering from gonorrhœa ceased to attend before the completion of their treatment. Of the syphilis patients 23 were male and 27 female.

The total attendances at these hospitals was 3,289, or an average of 27 patients per clinic. Of these 328 were treated by injections of Salvarsan substitutes, and 1,213 doses were given during the five months under review.

For the purpose of diagnosis the following examinations of material from patients were made at the clinics :—

For Wassermann reaction	462
For Spirochetes	11
For Gonococci	243

In addition to the examinations made at the General Hospital and the Skin and Urinary Hospital, there were 269 made by Professor Leith and Dr. Assinder for the Wassermann reaction, and 51 for Gonococci.

All of these numbers are small for a city of 900,000 persons. The number of attendances is, however, growing. The figures indicate the need of the widest publicity being given, so that the largest use shall be made of the best possible treatment free of all cost to the patient.

The following is a copy of the letter sent out to medical practitioners, giving details of the scheme arranged by the Public Health Committee :—

PUBLIC HEALTH DEPARTMENT.

The Council House, Congreve Street, Birmingham,

October, 1917.

Dear Sir (or Madam),

Venereal Diseases.

By the Public Health (Venereal Diseases) Regulations, 1916, it is ordered that :—

Article I.—Every Council shall, subject to the approval of the Local Government Board, make arrangements for enabling any medical practitioner practising in the area of the Council to obtain, at the cost of the Council, a scientific report on any material which the medical practitioner may submit from a patient suspected to be suffering from venereal disease.

Article II.—(1) Every Council shall prepare and submit to the Local Government Board a scheme (*a*) for the treatment at and in hospitals or other institutions of persons suffering from venereal disease ; and (*b*) for supplying medical practitioners with Salvarsan or its substitutes for the treatment and prevention of venereal disease ; and when the Board have approved the scheme the Council shall make arrangements for carrying it into effect at the cost of the Council.

(2) All information obtained in regard to any person treated under a scheme approved in pursuance of this Article shall be regarded as confidential.

I have now to give you notice that under the above regulations the following facilities for diagnosis and treatment of cases of venereal disease have been made available for Birmingham :—

A.—Diagnosis.

(1) Any medical practitioner can obtain an outfit for collecting samples of blood, etc., for Wassermann reaction, or an outfit for transmitting film preparations for Spirochetes or Gonococci, by applying to :—

Professor Leith, Pathology Department, The University, Great Charles Street ;
Dr. E. W. Assinder, No. 22 Broad Street ; or
The Medical Officer of Health, The Council House, Congreve Street.

After examination by Professor Leith or Dr. Assinder a report will be sent to the medical practitioner free of charge. If any of the samples are transmitted by post a fee of 6d. per sample will be paid by the City Council.

(2) If a general practitioner so desires he may make an arrangement with Dr. Assinder for the taking of a sample of blood, etc., from his patient at Dr. Assinder's rooms, No. 22 Broad Street. A report will subsequently be made to him on such specimen.

(3) A practitioner may make an appointment with the Medical Officer in charge of either of the Clinics for Venereal Diseases for a consultation at the Clinic as to the diagnosis or treatment of a patient suspected to be or actually suffering from venereal disease.

B.—Treatment.

Two Clinics will be open as follows :—

(1) At the General Hospital, Steelhouse Lane—

Tuesday morning, from 10 to 12 o'clock. Tuesday afternoon, from 4 to 6 o'clock. Friday afternoon, from 4 to 6 o'clock.	For men and women.

(2) At the Skin and Urinary Hospital, John Bright Street—

Tuesday evening, from 6 to 7-30. Friday evening, from 6 to 7-30.	For men.
Thursday evening, from 5-30 to 7.	For women.

The Local Government Board have made it a condition that treatment shall be given to any applicant at these Centres, but have intimated that persons who appear to be able to pay should, if they are willing, be referred to their family doctor or some other medical man selected by the patient. Precautions have been taken to see that this will be carried out.

Any medical man has a right to send patients to the Clinics for both diagnosis and treatment.

Administration of Salvarsan or its substitutes.

Beds have been set aside at each of the above-named Hospitals for patients requiring this treatment. Further, if so desired, a patient may be sent for Salvarsan treatment alone, while any subsequent treatment may be continued by the general practitioner.

On application to the Medical Officer of Health, a supply of approved substitutes for Salvarsan (Kharsivan, Neokharsivan, Arsenobillon, Novarsenobillon, Diarsenol and Galyl) will be supplied free of charge to any practitioner who possesses one or other of the following qualifications :—

(*a*) Holds a certificate of having satisfactorily fulfilled the duties of clinical assistant in a Hospital Department recognised by the Local Government Board in connection with a local authority's scheme for the diagnosis and treatment of venereal diseases in their communicable stages ;

(*b*) Holds a certificate of satisfactory attendance at a course of instruction in the diagnosis and treatment of venereal diseases (including intravenous medication) in such a Hospital Department, or in a recognised Medical School or Post-Graduate College ;

(*c*) Is or has been within the last five years a member of the permanent staff of a Hospital managed by a Committee, and containing not less than 50 beds ;

(*d*) Produces satisfactory evidence, other than that indicated in the foregoing paragraphs, that he has had adequate experience in the administration of these drugs by intravenous injection. (See *Brit. Med. Journal*, 2nd September, 1916, p. 77.)

C.—Demonstrations and Clinical Teaching.

Such demonstrations and post-graduate teaching will from time to time be arranged at the Laboratories and Clinics, and duly announced.

Subject to the general obligation on medical practitioners as to professional secrecy, the attendance of medical practitioners at the Clinics will be welcomed.

D.—General.

The arrangements for diagnosis and treatment made under the scheme, together with the wide distribution of information as to the need of immediate treatment of Venereal Diseases by the Birmingham Branch of the National Council for Combating Venereal Diseases, will, it is anticipated, greatly increase the number of cases of venereal disease applying for treatment to private practitioners.

The City Council trust that the facilities for diagnosis outlined above, together with the means of obtaining information and experience in regard to modern methods of treatment, will be of help to medical practitioners.

The assistance of the Profession is asked in securing that every person who is in an infectious condition due to venereal disease shall as speedily as possible be rendered non-infectious by securing adequate treatment by a private medical practitioner or at the Clinics until infection ceases. In the case of Syphilis, treatment should be urged until a negative Wassermann reaction be obtained.

Yours faithfully,

JOHN ROBERTSON,

Medical Officer of Health.

A subsequent letter was issued, stating that a clinic for married women had been arranged at the out-patient department of the Women's Hospital on Thursdays, between 1-30 and 4 o'clock.

CANCER.

The following table gives particulars as to site of the disease, together with the age and sex of the sufferer:—

Deaths from Cancer in 1917.

Ages.	Mouth.			Stomach, Liver, &c.			Peritoneum, Intestine, etc.			Female Organs of Reproduction.			Breast.			Skin.			Other Organs.			Total.		
	Males.	Females.	Total.	Males	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females	Total.	Males.	Females.	Total.
Under 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1 –	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5 –	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	3	3
10 –	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15 –	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	2	2	4	2	3	5
20 –	—	—	—	1	—	1	1	1	2	—	—	—	—	—	—	—	—	—	3	—	3	5	1	6
25 –	—	—	—	1	1	2	4	1	5	—	6	6	—	3	3	—	—	—	—	5	5	5	16	21
35 –	3	1	4	14	13	27	8	8	16	—	25	25	—	14	14	1	—	1	13	8	21	39	69	108
45 –	7	1	8	26	21	47	15	18	33	—	39	39	—	30	30	2	—	2	24	8	32	74	117	191
55 –	13	3	16	58	45	103	19	18	37	—	38	38	1	18	19	1	1	2	31	18	49	123	141	264
65 –	6	1	7	35	32	67	29	29	58	—	20	20	—	20	20	1	2	3	31	13	44	102	117	219
75 –	5	2	7	10	18	28	12	13	25	—	3	3	—	11	11	—	1	1	13	3	16	40	51	91
85 –	1	—	1	—	1	1	1	—	1	—	—	—	—	1	1	—	—	—	—	—	—	2	2	4
All Ages	35	8	43	145	132	277	89	88	177	—	132	132	1	97	98	5	4	9	117	59	176	392	520	912

CEREBRO-SPINAL MENINGITIS (SPOTTED FEVER).

Twenty-nine cases of this disease occurred in 1917, the same number as in 1916, as compared with 52 in 1915 and 10 in 1914. The number of deaths among these 29 cases was 21 or 72·4 per cent.

The months of the year in which the onset of the cases occurred were as follows :—

January	1	July	1
February	3	August	2
March	5	September	0
April	2	October	3
May	2	November	3
June	3	December	4

The ages of the persons affected and the deaths among the cases are shown thus :—

	Males.			Females.	
	Cases.	Deaths.		Cases.	Deaths.
0– 1 year	2	2	...	2	2
1– 5 years	3	3	...	2	1
5–10 ,, ...	1	1	...	3	1
10–15 ,, ...	1	0	...	4	3
15–20 ,, ...	2	2	...	2	1
20–25 ,, ...	1	1	...	0	0
Over 25 years	4	2	...	2	2

The cases were treated as follows :—

	Cases.	Deaths.
General Hospital	14	9
Queen's Hospital	2	2
Children's Hospital	3	2
At their homes by medical practitioners	10	8

In the eight cases which recovered there was no permanent paralysis left.

In addition to the cases previously mentioned, 12 other patients were notified as suffering from Cerebro-Spinal Fever, but on later examination they proved to be definitely not cases of this disease.

In 22 of the 29 cases lumbar puncture was performed and in 18 of these the diagnosis of Cerebro-Spinal Fever was confirmed by bacteriological examination of the Cerebro-Spinal Fluid. Of these 18 cases 11 died and 7 recovered, giving a mortality rate of 61 per cent.

The cases of the disease occurred over the whole area of the city, and were not more prevalent in any special district, and in no case was there more than one case in a family. In these scattered cases of illness it is generally impossible to definitely diagnose Cerebro-Spinal Fever from other forms of meningitis without a bacteriological examination, and it will perhaps be safer to take the deaths among the verified cases as the true mortality rate of this disease in the city.

ACUTE ANTERIOR POLIOMYELITIS.

Eleven cases of this disease were notified during the year, compared with 19 in 1916 and 8 in 1915. There were 2 deaths, and of the 9 cases which recovered only 3 were left with permanent paralysis.

The ages of the patients affected and the fatal cases were :—

	Males.	Females.	Total.	Deaths.
0– 1 year	1	–	1	1
1– 5 years	4	2	6	1
5–10 ,, ...	1	–	1	–
10–15 ,, ...	1	–	1	–
15–20 ,, ...	1	1	2	–
	8	3	11	2

BRONCHITIS AND PNEUMONIA.

These diseases caused 1,756 deaths in 1916. This is equal to 16 per cent. of the total deaths from all causes.

Death-Rates from Bronchitis and Pneumonia.

	Bronchitis.				Pneumonia.			
	Birmingham.		England and Wales.		Birmingham.		England and Wales.	
1901 ...	1·80		1·37		1·55		1·15	
1902 ...	1·64	Average	1·32	Average	1·46	Average	1·41	Average
1903 ...	1·46	1·62	1·11	1·24	1·32	1·44	1·22	1·27
1904 ...	1·76		1·25		1·49		1·28	
1905 ...	1·43		1·14		1·37		1·30	
1906 ...	1·38		1·04		1·32		1·22	
1907 ...	1·49	Average	1·22	Average	1·47	Average	1·35	Average
1908 ...	1·47	1·41	1·10	1·09	1·22	1·30	1·19	1·24
1909 ...	1·47		1·15		1·36		1·30	
1910 ...	1·24		0·96		1·15		1·11	
1911 ...	1·25		1·00		1·16		1·04	
1912 ...	1·26	Average	1·08	Average	1·20	Average	1·02	Average
1913 ...	1·20	1·27	1·06	1·13	1·13	1·20	1·02	1·10
1914 ...	1·26		1·08		1·24		1·08	
1915 ...	1·37		1·44		1·28		1·36	
1916 ...	1·29		1·25		1·13		1·06	
1917 ...	1·01		—		0·94		—	

PUERPERAL FEVER.

OPHTHALMIA NEONATORUM.

(*See Special Report at end of this Report.*)

CONTAGIOUS DISEASES OF ANIMALS.

(Report by Mr. Malcolm, M.R.C.V.S., Veterinary Superintendent.)

I have pleasure in submitting report on the occurrence of some of the chief scheduled contagious diseases in animals here during 1917.

Glanders and Farcy.

There was no case of glanders and farcy in the city during 1917, as compared with one case during 1916, no case in 1915, and 100 cases in the year 1908. In Great Britain there were 25 outbreaks, in which 63 horses were attacked, against 46 outbreaks and 117 horses attacked in 1916. If this rate of decrease can be continued the disease will soon be extinct.

Anthrax.

Ten cases of suspected anthrax in cattle were reported during the year. After examination, only one proved to be a case of this disease. The affected animal with seven others was sent from Montgomeryshire by rail to the city abattoir, and on arrival of the train the bullock was found dead. As compared with this the number of cases in 1916 was six. Although only one case occurred during the year, the necessity for constant expert inspection for this and other diseases cannot be relaxed.

Swine Fever.

There have been 33 outbreaks of swine fever in the city during the year. The number of outbreaks in 1916 was also 33. Although there is no decrease in the number of outbreaks in Birmingham in 1917 as compared with 1916, there is a very marked decrease in the country generally, the number for 1917 being 2,104, against 4,331 in 1916. This reduction is attributd to two causes—the marked success of the preventive treatment of this disease by serum immunization and the lessened swine movement throughout the country as a consequence of the war. The success of the serum treatment is very striking, and foreshadows a much greater control of the disease in the future than has been the case in the past.

Parasitic Mange in Horses.

There were 68 cases of parasitic mange in Birmingham during the year, as against 45 in 1916 and 111 in 1915. The increase as compared with 1916 is probably attributable to the short supply of working horses available for town work, and as a consequence the disinclination of owners to report cases which necessitated the immediate suspension of affected horses from work. As in Birmingham, there has been in the country generally a marked increase in the prevalence of this disease.

Sheep Scab.

One outbreak of sheep scab occurred in the city, affecting the flock of 162 sheep. Fortunately, this outbreak was reported at once to the authorities, and immediate steps were taken to prevent any further spread of the disease. No other case occurred.

Tuberculosis.

The Tuberculosis Order dealing with Bovine Tuberculosis still remains in suspension, and only such cases as come under the Birmingham Dairy Regulations have been dealt with by the Local Authority.

Other Scheduled Diseases.

No case of any other scheduled disease (Rabies, Rinderpest, Epizootic Lymphangitis, Bovine Pleuro-Pneumonia, Foot and Mouth Disease, etc.) has occurred in Birmingham during the year.

Johne's Disease.

This still incurable contagious unscheduled disease continues prevalent, and causes serious loss in the meat supply. In connection with this disease I venture to repeat here the last sentence of my report on this subject last year:—

"If it were more generally known that recovery from Johne's disease (in the light of our present knowledge) is hopeless, that the longer Johne-infected cattle were kept alive the less is their value, until they are finally valueless, and that while they live they spread the infection of the disease, stock owners would speedily limit their expenses and cut their losses from Johne by immediately having their infected animals slaughtered."

DISINFECTION.

The articles disinfected after infectious diseases were as follows:—Beds, 3,060; mattresses, 1,313; counterpanes, 1,580; blankets, 2,629; sheets, 1,288; bolsters, 1477; pillows, 5,639; garments, 2372; boots, 165; carpets, 345; and sundries, 714.

CITY HOSPITALS.

The following statement shows the number of patients * treated last year in the City Hospitals:—

	Scarlet Fever.	Diphtheria.
Under treatment at beginning of year ...	158	91
Admitted during the year	901	649
Discharged during the year	894	557
Died during the year	17	83
Remaining at end of year	148	100

* In a certain number of cases the diagnosis was revised in hospital.

A considerable number of cases of measles, mumps, chicken-pox and ringworm were also admitted, nearly all of them at the request of the Military Authorities.

REPORT ON LITTLE BROMWICH HOSPITAL.

(By Dr. James O'Shea, Acting Medical Superintendent.)

Scarlet Fever.

Number remaining in hospital, December 31st, 1916	149
Number admitted during the year 1917.	831
Total under treatment during the year 1917	980
Number discharged during the year 1917	835
Number died during the year 1917	16
Number remaining in hospital December 31st, 1917	129
	980

The number of deaths amongst the 831 patients admitted during the year was 15, giving a death-rate of 1·8, as against 1·4 for the previous year.

Four of these cases suffered on admission from diphtheria, one from pneumonia, one from peritonitis, one from diphtheria and tubercular meningitis, whilst two contracted diphtheria and one pneumonia in hospital. If these 10 cases be deducted, the death-rate becomes ·61, as against ·57 last year.

152 cases had diphtheria during their stay in hospital, and 69 of these were definitely diphtheritic on admission.

Diphtheria.

Number remaining in hospital December 31st, 1916	90
Number admitted during the year 1917	654
Total under treatment during the year 1917	744
Number discharged during the year 1917	563
Number died during the year 1917	83
Number remaining in hospital December 31st, 1917	98
	744

Of the 654 cases admitted 79 died, giving a death-rate of 12·1, as against 8·8 last year. Twenty-four of these were laryngeal cases.

Deducting 44 cases which died within 48 hours of admission, the death-rate becomes 5·4, as against 6·7 last year.

Tracheotomy was performed in 23 cases, of which 15 died. Two cases were admitted with tracheotomy wounds and three cases were admitted with intubation tubes.

Analysis of Cases.

Forty of the cases admitted were not suffering from diphtheria. There were 91 laryngeal cases.

In 312 cases the membrane was limited to the fauces; the remaining cases had membrane on the palate or naso-pharynx.

Paralysis.

There were 88 cases of paralysis, of which 48 were palatal, 18 cardiac, 5 oculo-motor, and the remainder were mixed.

Military Patients.

200 military patients have been treated during the year:—Scarlet fever, 35; diphtheria, 38; measles, 126; mumps, 1.

Condition of Patients.

There were a number of patients with bad teeth and dirty heads.

Infection among Staff.

2 Nurses off duty with Scarlet Fever	38 days.
2 Nurses off duty with Measles	42 days.
1 Maid off duty with Measles	12 days.
16 Nurses off duty with Diphtheria	821 days.
6 Maids off duty with Diphtheria	209 days.

LODGE ROAD AND WEST HEATH HOSPITALS.

Owing to the small number of cases it was not necessary to open Lodge Road Hospital, which has been closed since October, 1915.

West Heath Hospital was again used for cases residing in the neighbourhood, the number of cases admitted being 76.

GENERAL SANITARY INSPECTORS' WORK.

No. of visits and revisits paid :—	
Infectious Diseases	5,232
Nuisances or Complaints	23,092
Work ordered	31,043
Work in progress	7,093
Inspection of Dirty Courts	13,587
Manure Receptacles	2,547
Smoke or Water Tests	730
Tents, Vans and Sheds	133
Offensive Trades	58
Ice Cream Vendors	1,212
Billets for Soldiers	429
Calls on Owners or Agents	3,484
Other Purposes	6,220
Total	94,860
Nuisances, etc., reported :—	
Houses to be disinfected after Scarlet Fever ...	1,083
" " " Diphtheria	703
" " " Typhoid Fever ...	37
Repairs to Houses	5,540
Houses to be cleansed	1,003
Houses to be provided with better ventilation ...	70
Houses to be provided with separate water supply	44
Cases of overcrowding to be remedied	38
Houses to be provided with Damp Courses... ...	110
Water to be removed from Cellars	670
Spouting to be repaired or disconnected	2,346
Rain Water Cisterns to be disconnected or abolished	112
Ashpit Privies to be converted to Water Closets ...	18
Pan Privies to be converted to Water Closets ...	13
Privies and Closets to be limewashed	307
Water Closets to be repaired or reconstructed ...	3,573
Additional Water Closets to be provided	38
Ashplaces to be repaired or limewashed	696
Ash Tubs to be provided	1,673
Soilpipes to be repaired or removed	48
Urinals to be put in order or closed	39
Drains to be relaid or repaired	986
Drains to be opened and cleansed	7,279
Gully Traps to be provided	174
Interception Traps to be provided on main drains ...	43
Premises to be supplied with additional drains ...	129
Drains in cellars to be disconnected or abolished ...	10
Sink Bend Pipes to be repaired or affixed	500
Sanitary Sinks to be provided	253
Yards to be paved	40
Yards to be repaired	327
Courts or Yards to be cleansed by Tenants... ...	871
Wash Houses to be repaired or limewashed ...	595
Keeping of fowls to be discontinued	64
Nuisances from swine and swine styes abated ...	8
Accumulations of rubbish, manure, etc., to be removed	388
Manure receptacles to be provided or repaired ...	145
Dangerous premises to be reported to City Surveyor's Department	283
Defective Fittings to be reported to Water Dept....	3,111
Other Work to be done	52
Total	33,419

SANITARY NOTICES ISSUED.

Preliminary notices	10,590
Reminders...	1,356
Statutory notices...	805

SPECIAL W.C. INSPECTORS.

No. of houses visited	121,679
No. of good ashbins	38,530
No. of bad ashbins	761
W.C.'s locked up	25,538
W.C.'s not locked	31,261
W.C.'s found obstructed	1,260
Obstructed drains reported	278
Defective W.C.'s reported	386
No. defective ashbins reported	75
Other defects reported	372

WORK DONE BY COURT CLEANSING STAFF.

Courts cleansed by staff and paid for	11,789
Courts cleansed free of charge	5,560
Houses stripped	67
Out-houses limewashed	133
W.C.'s examined...	80,479
W.C.'s opened	17,831
W.C.'s cleansed	66,434
Pan privies limewashed	187
Ash places limewashed	26,259
Drain traps cleansed	127,610
Drains freed from obstruction	11,411

COMMON LODGING HOUSES.

No new lodging houses were registered during the year and one was closed, leaving 36 such houses in the city, having accommodation for 2,284 lodgers. The work done in connection with them is shown below :—

Visits by day	1,890
Visits by night	265
Work ordered :—	
Windows to be opened	52
Floors to be cleansed	82
Ventilators to be provided	2
Walls, floors, roofs, etc., to be repaired	344
Water-closets to be repaired	60
Water-closets to be cleansed	18
Ashbins to be provided	11
Drains or yards to be repaired	14
Houses to be limewashed	123
Removal of rubbish	32
Bed linen to be cleansed (articles)	100
Verminous bedding to be cleansed	18
New beds to be provided	40
Summonses...	0

HOUSES LET IN LODGINGS.

The work done in regard to this very objectionable class of houses is indicated in the next statement:—

Houses on the register	633
Lodgers allowed	3,663
Visits paid to registered houses	5,743
Overcrowding	48
Improperly mixing the sexes	17
Houses requiring repair	26
Rubbish to be removed	8
Rooms not swept daily	454
Passages not swept	158
Stairs not swept	185
Bedding to be cleansed	142
Houses to be cleansed	276
Drains, etc., obstructed	204
Water-closets to be repaired	9
Ash-tubs to be provided	5
Windows not opened	399

CANAL BOATS REPORT.

PUBLIC HEALTH DEPARTMENT,

THE COUNCIL HOUSE, BIRMINGHAM,

March 8th, 1918.

Gentlemen,

In compliance with Section 3 of the Canal Boats Act, 1884, I beg to submit to you the annual report of the work done by this Department during the year 1917, under the Canal Boats Acts, 1877 and 1884, and regulations under these Acts made by the Local Government Board.

The work has been done during the whole of the year by Inspector H. Howes, in the absence of Inspector W. G. E. Childs, who is serving, as reported last year, in His Majesty's Forces. Inspector Howes, who also acts as Inspector of Common Lodging Houses in the city, receives a salary for the combined appointment of 39s. per week and uniform.

INSPECTION OF BOATS.

During the year 1917 973 boats were inspected. These boats, which were registered to carry 3,300½ persons, were found to be occupied by 1,144 men, 722 women, and 968 children, equivalent in all to 2,350 adults.

The number of inspections as spread over the four quarters of the year is shown as follows:—

First quarter	243 boats inspected.
Second quarter	280 „ „
Third quarter	210 „ „
Fourth quarter	240 „ „

The following table shows the number of boats inspected during the last five years, with the number of adults the boats were registered to carry, and the actual number found on board:—

Year.	No. of Boats Inspected.	Registered to Carry.	Actually found Carrying.
1913	1,080	3,314½	2,427
1914	1,048	3,234½	2,408½
1915	802	2,551½	1,827
1916	1,072	3,647	2,565½
1917	973	3,300½	2,350

Of the 973 boats inspected it was found that 935, or 96 per cent., were in good condition, and complying with the requirements of the Acts and Regulations, but 38 boats, or 4 per cent., of the number examined were found to have contraventions of various kinds.

The number of such contraventions was 82, and these were distributed among the 38 boats, thus :—

Boats found with 1 contravention each	12	total	12
„ „ „ 2 contraventions „	10	„	20
„ „ „ 3 „ „	14	„	42
„ „ „ 4 „ „	2	„	8
	38		82

A complaint note was served on the owner in every case.

During the year under review 47 certificates were returned by the owners, duly signed by a canal boat inspector, and certifying that 102 complaints had been remedied, leaving outstanding on our books 29 contraventions to be dealt with in 1918.

The following table shows the number and character of contraventions found and remedied during the year 1917 :—

Contraventions referring to	Outstanding and brought forward from 1916.	Found during 1917.	Remedied during 1917.	Carried forward to be dealt with in 1918.
Certificates not produced	3	5	6	2
Repairs	12	18	22	8
Painting	18	23	33	8
Marking	7	7	11	3
Overcrowding	1	3	4	0
Separation of sexes	0	3	3	0
Leaks	7	17	18	6
Certificates not identifying boat	1	1	1	1
Non-registration	0	3	2	1
No pump on board	0	2	2	0
	49	82	102	29

Again this year, as noted in the last report, there has been longer delay than usual on the part of the owners in returning the certificates stating that the defects complained of have been remedied and this has been due partly to the urgent necessity for continuing the use of the boats and partly to the very great scarcity of labour for effecting repairs. The owners have, however, done their best under these conditions, as is shown by the fact that only 29 complaints are still outstanding.

In only one instance was it necessary to take legal proceedings, and the circumstances were as follows :—

The boat "Three Sisters" was met with in Birmingham on November 23rd and December 21st, 1916, and it was found that the boat was being used as a dwelling without being registered as such. A complaint note was sent to the owners on each occasion. The certificate was not returned, and reminding letters were sent on June 4th and July 2nd, 1917. The boat was seen again on September 1st, and as no steps had been taken to have the boat registered, legal proceedings were then taken, and a fine of ten shillings was imposed.

Registration of Boats.

During 1917 ten boats have been registered in Birmingham and eleven registrations have been cancelled, leaving a total of 464 on the register, as against 465 on December 31st, 1916.

The registrations were as follows :—

New Motor Boats	1
New Ordinary Boats	3
Re-registration of Ordinary Boats	6
Total registrations	10

Of the six re-registrations five were necessitated by change of ownership, and one by alteration of the name of the boat. One of the boats which changed hands was previously registered at Birmingham, one at Uxbridge, one at Wolverhampton, one at Daventry, and two at Towcester.

Boats on Register.

The number of boats on the Birmingham register for the last five years is shown as follows :—

December 31st, 1913—Boats on Register	448
„ 1914 „	457
„ 1915 „	464
„ 1916 „	465
„ 1917 „	464

The number of motor boats now on the Birmingham register is 21, and the dates of their entries are :—

Nos. 1242 and 1249	Registered in 1911.
Nos. 1256, 1275 and 1276	Registered in 1912.
Nos. 1286, 1290, 1299, 1301 and 1304	Registered in 1913.
Nos. 1308, 1310, 1314, 1316, 1320 and 1325	Registered in 1914.
Nos. 1335 and 1342	Registered in 1915.
Nos. 1348 and 1350	Registered in 1916.
No. 1360	Registered in 1917.

Infectious Disease.

It is gratifying to be able to report that during the year 1917, as during the three preceding years, no case of infectious disease of any kind has been notified or found on the canal boats in the city.

I am, Gentlemen, your obedient servant,

T. W. BEAZELEY, M.B., D.P.H.,
Assistant Medical Officer of Health.

THE MILK SUPPLY.

Sufficient importance has never been attached to the supply of an abundance of good clean milk for both young and old. Next perhaps to bread it is the most valuable food which we possess.

Formerly all the milk was sold at 3d. or 4d. per quart, while recently it has varied from 6d. to 8d. This increase has undoubtedly had the effect of diminishing the supply to toddlers and other children. Possibly the total supply to the city has not greatly diminished, but a larger number of adults have found it convenient to add more milk to their daily dietary to make up for deficiencies in other foods.

From some figures recently received as to the total supply during the winter of 1917, the amount of milk consumed by each person in Birmingham on an average was slightly over a teacupful—7·4 ozs.—per head per day. Unfortunately, there are no available comparative figures. If, however, an allowance of 1½ pints per day were made to each child under the age of ten years, and of half-a-pint on an average for every person over ten, the average consumption would be represented by double the quantity, *i.e.*, 14 ozs.

There is abundant evidence in peace time, and even more in war time, that the use of milk by the artisan classes is far too limited. The large staff of women workers employed by the Public Health Committee, who are in intimate contact with the feeding conditions of the children of Birmingham, all tell the same story, viz., that the supply to the toddlers and other children is most inadequate, and that this is due to a want of appreciation of the value of milk and in a few cases to inability to pay for a supply. Leaflets are distributed on various subjects dealing incidentally with the need of milk for children. Among these is one on milk alone, which has been widely distributed. It is as follows :—

MILK AS A FOOD.

The object of this leaflet is to point out the value of milk as one of the best and cheapest foods for children of all ages, for adults, and particularly for invalids.

Composition.

Milk is one of the very few foods which contain all the elements necessary to support life. Average milk contains about 3½ parts per 100 of flesh-forming constituents, 3½ per 100 of butter fat, 4½ parts per 100 of milk sugar, and certain other very important ingredients, saline and otherwise, necessary in a perfect food.

Cow's Milk for Infants.

(See Special Pamphlet supplied free of charge.)

Cow's Milk for Children.

All young children should have milk, or foods prepared with milk, as the *principal* part of their diet. The milk should be fresh cow's milk of a good and clean quality, and not tinned or preserved milk in any form. A very large number of children do not get a sufficient quantity of milk, because it is thought to be an expensive article of diet. *(See last paragraph.)* Growing boys and girls should have milk at least three times a day. Children sometimes tire of it when given cold; if so, it can be replaced by hot milk.

Cow's Milk for Adults.

Cow's milk is one of the best foods there is, and may be taken hot or cold or prepared in a variety of ways. Occasionally people find that they cannot digest cold cow's milk. This is largely because they regard it as a beverage and not as a food. Nearly all adults can digest milk well if they drink it with their meals in place of water, tea, or beer. There is nothing more stimulating and valuable for old people than a glass of hot milk taken with a meal.

Cow's Milk for Invalids.

Whenever the digestive organs are weak or out of order, as is the case with people who are ill, milk should form one of the chief parts of the dietary. For instance, consumptives and delicate persons are always advised to take as much milk as they can; it is often found that they gain strength from it in a wonderful manner. Similarly, people suffering from kidney disease or other acute illness are usually fed mainly on milk because of its digestibility and freedom from irritating or poisonous substances.

The Kind of Milk to Buy.

The public should demand that the milk is fresh, pure, and clean. It is important to get milk which is only a few hours old, rather than milk which has been stored for 24 hours. It is equally important to get milk from cows which are kept and milked in a clean condition. It is, therefore, a good thing to get milk from a dairyman who buys his milk from a farmer near at hand and not from a distance, as in the latter case the milk has to be sent a long journey by road and rail. Milk should be cooled at the farm, and kept cool until it is consumed. If after allowing the milk to stand there is any brown sediment at the bottom of the vessel it is well to change the supply. If milk keeps badly, it is a sign that there is carelessness somewhere, and steps should be taken either to change the supply or keep the milk under better conditions. The production of clean milk costs more than that of dirty milk, but the extra cost is money well spent, as such milk is more valuable as a food.

Storage of Milk in a Dwelling.

Frequent complaints are made by dairymen that dirty vessels are used by customers to put the milk in. Milk should be received from the dairyman in a clean jug which has been well scalded, and this should be covered with a piece of muslin. In hot weather the milk jug should stand in a basin of cold water. Milk derived from a clean farm and treated in this way should be perfectly sweet at the end of 48 hours.

Milk as a Cheap Food.

Milk is a cheap food, because

1.—*The whole of it can be digested, there being no waste as in the case of most other foods.*
2.—*It has a high food value on account of its easy digestibility.*
3.—*It has a high food value because it contains just the constituents necessary in a perfect food.*

People with limited means are, therefore, recommended to use milk, although at first sight the cost may appear to be a high one.

JOHN ROBERTSON,

Medical Officer of Health, Birmingham.

The first point, therefore, to be noted in considering our milk supply is that milk is and always has been used in a far too limited way. Anything which increases its cost is going to still further reduce its consumption.

Next in importance to the quantity of milk is its cleanliness. In England very little has been done to obtain a supply of clean, wholesome milk for everybody. No standards have been set up as to cleanliness. Indeed, it has been the rule that practically any

milk can be sold with impunity so long as it has not been watered or had its cream removed. Some steps are, however, being taken, for in the Act relating to milk supplies, which is to come into operation after the war, power is obtained to make regulations as to cleanliness.

Several methods have been devised for estimating cleanliness and good handling. One of these is by means of measuring the dirt by sedimentation in a tube. This by itself is not wholly satisfactory, as it assumes that the presence of, for instance, a certain measure of black particles is of necessity harmful. Another method is by counting the number of germs in a known volume of the milk under definite conditions. This again does not give us complete evidence as to the wholesomeness of the milk. If used properly, however, it is probably our best guide at the present time. It has, however, certain limitations, and too much must not be required from it.

It may be here stated that under certain conditions it is possible to obtain from a cow milk which contains no germs of any kind. This is, however, under ordinary conditions, impracticable, and, therefore, one has to assume that all milk as it comes from the cow has in it a goodly number of germs derived from the udder ducts, the hands of the milker, the skin of the cow's udder, especially its soiled flanks, and, to a less extent, from the air of the cowshed.

These germs get into a warm nourishing fluid, and grow at a prodigious rate, so that even milk which has been obtained under the cleanest conditions contains enormous numbers if allowed to remain warm for a few hours. The numbers actually found will vary with the original number getting access to the milk at milking time, to the temperature at which the milk is kept, and the length of time which has elapsed between milking and examination. When these germs multiply beyond certain proportions souring and clotting result. In some cases such milk produces harm when consumed.

Recently a number of Birmingham milks have been examined with a view to ascertaining their bacterial content. The figures obtained from the examination are as follows :—

	No. of germs per c.c. of milk which grow at room temperature (gelatine)	No. of germs per c.c. of milk which grow at blood heat. (Agar)
123 ordinary raw milks purchased during winter months in Birmingham ...	2,578,000	613,000
16 milks from babies' feeding bottles in poor areas	1,958,000	325,000
28 milks immediately after pasteurising	121,000	85,500
3 milks from bottles sold as sterilised	33	30

These figures indicate very clearly what a large growth has taken place in the ordinary milks of Birmingham during the winter months. Much of this milk had to be either consumed at once or pasteurised or sterilised to prevent its souring and becoming unsaleable It is true to say that even during the winter months there is a large wastage in the milk trade from souring. There is probably a large wastage from similar causes in the dwelling houses, so that, apart from the harm that such milk is capable of producing in the human subject, the monetary loss from germ-laden milk is a heavy one.

The practical point is—" What can be done to prevent this condition of affairs ? "

(1). *Premises and methods at the farm.*—It is quite practicable to supply a clean milk from the farm if clean methods are adopted. This is proved by the records of innumerable farms in this country, in America, in Denmark, and elsewhere. Indeed, in America the standard is widely adopted that a first class milk should not contain more than 10,000 organisms per c.c. Such a standard, however, could not be attained in the majority of the dairy premises of this country, because in most instances it is impossible to keep them clean. But while this is so, much could be done to vastly improve the existing conditions of premises and milking arrangements. It would be easy to lay down minimum standards for premises and methods, but difficult to get the need for these appreciated.

(2). After the milk is drawn from the cow it must be efficiently cooled at once. The neglect of this precaution and the delay in transit are the two most important contributory causes of the excessive number of germs found in milk in Birmingham. The cooling of milk efficiently at a farm is a matter of very considerable difficulty. Most of the Danish farmers, who send milk for retail sale, cool their churns of milk by immersing them in a tank filled with block ice, which they collect during the winter from the rivers and ponds in the neighbourhood, and which is stacked near the dairy and covered with earth.

In England the majority of farmers pass the milk over a cooler, so arranged that water from a well or stream or other source is pumped through it while the milk passes in a fine layer over the outside. The temperature of the cooled milk in such cases depends on the temperature of the water used. It is often far too high to be effective, with a result that much of our milk is insufficiently cooled before leaving the farm. Even worse, however, is the large number of farmers who send off their milk uncooled. This number is on the increase owing to labour shortage at the farms.

Delays in transit from farm to Birmingham have been more damaging to the supply than ever before. The farmer mixes his night's milk with his morning's, and sends them together once each day. The railway service is slower and less frequent.

The milk, therefore, is now arriving in Birmingham in a much worse condition than ever before. This is indicated by the large multiplication of germs which occurs in the badly-cooled and long-delayed milk, and is indicated in the figures already given.

A large part of the milk coming to Birmingham wholesale dealers is pasteurised on arrival and before being distributed. This pasteurisation is of the greatest importance at the present time, and is the process that just enables the farmers' milk coming from a distance to be distributed. It reduces the number of germs present in the milk by 96 per cent. (Gelatine counts) on an average in winter samples and by 87 per cent. (Agar counts). Obviously, the efficient cooling of the milk and the quick and efficient means of transport are items in a perfect supply as important, or even more important, than good conditions in the cowshed.

After arrival in Birmingham, the question of pasteurisation will depend on the efficiency of the previous handling. The vast majority of milk consigned to wholesale dealers is now pasteurised on arrival. Indeed, it may be said that during the past few years the handling of milk without expensive machinery has become impossible, and that town pasteurisation has made it possible to deal with milk which otherwise it would have been impossible to use.

Pasteurisation as usually carried out in Birmingham by all but two of the dealers consists in heating the milk up to 150 F., or thereabouts, for a few seconds, and then cooling to 40 F. This heating, as mentioned above, kills on an average 87 per cent. of the germs which grow at blood heat.

After pasteurisation the cooling is by water in many plants, but eight plants have a power-driven freezing apparatus, which circulates brine at freezing point through the tubes. In this way the milk is cooled to temperatures varying from 36 F. to 55 F.

Pasteurisation is at present a necessity in view of the delay in transit and defective apparatus at the farms. It is desirable, however, that the process should be improved.

Birmingham is somewhat exceptional, in that a large part of its milk is supplied through small shopkeepers and small itinerant vendors. Milk exposed in shops or in milk cans on the road is again liable to contamination by dust. Such milk, too, cannot be kept at a sufficiently low temperature to prevent the milk becoming the food of innumerable germs.

Milk Control in Birmingham.

The cowsheds in Birmingham and the cows in these sheds are inspected monthly by Mr. John Malcolm, F.R.C.V.S., or one of his veterinary assistants. These inspections include the examination of the cows for tuberculosis and the elimination of diseased cows. (See page 53.)

Milk arriving in Birmingham by rail is sampled for the germs of tuberculosis by Mr. Malcolm's Department. It is examined for dirtiness by one of the Milkshop Inspectors, who also examines the empty churns to see that they are clean.

The inspection of milkshops and of the vessels used in these shops or by street vendors is regularly carried out by the Milkshop Inspectors. (See next table.)

Further, samples are taken to the number of about 2,000 per annum for chemical analysis to ascertain if the quality falls below the standard laid down by the Board of Agriculture and Fisheries. (See separate report by City Analyst.)

MILKSHOPS AND DAIRIES.

No. of milkshops on register	4,327
No. of dairies on register	9
No. of purveyors on register	446
Visits to milkshops	2,605
Visits to dairies	17
Visits to purveyors	17
Visits to railway stations	49
Milk vessels examined	5,198
Milkshops limewashed	12
Sanitary defects remedied	4
Cases of infectious disease dealt with	12
New milkshops registered	302
New purveyors registered	18

MILK AND CREAM REGULATIONS.

The total number of samples taken during the year was 12.

1. *Milk and Cream not sold as Preserved Cream.*

	(a) No. of Samples examined for the presence of a preservative.	(b) No. in which a Preservative was reported to be present.
Milk	–	–
Cream	5	2

In the following table particulars are given relating to the two samples of cream not sold as preserved cream in which preservatives were reported to be present :—

Number.	Result of Analysis. Milk Fat.	Boric Acid.	Remarks.
C/3166	47%	0·3%	No declaratory label was affixed to receptacle. Further samples unobtainable.
C/3192	51%	0·3%	No declaratory label was affixed to receptacle. Further samples unobtainable.

2. *Cream sold as Preserved Cream.*

(*a*) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct.

(1) Correct statements made	7
(2) Statements incorrect	0
Total	7

(*b*) Determinations made of milk fat in cream sold as preserved cream.

(1) Above 35 per cent.	7
(2) Below 35 per cent.	0
Total	7

(*c*) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V (1) and the proviso in Article V (2) of the regulations have not been observed.

No case was brought to notice of any infringement of Article V (1) or the proviso in Article V (2) of the regulations.

(*d*) There were no incorrect statements on the declaratory labels, and the requirements as to labelling of preserved cream in accordance with Article V (2) were strictly complied with.

3. *Thickening Substances.*

There was no evidence of the addition of any thickening substance either of cream or preserved cream.

The following is a complete list of the samples of cream and preserved cream referred to, and the percentage of preservative found to be present as compared with that indicated in the statutory label (where affixed) in respect of each sample is also set out :—

Number.	Article.	Percentage of Boric Acid indicated in Statutory Label.	Percentage of Boric Acid found on analysis.
C/3126	Preserved Cream	0·4%	0·4%
C/3129	Preserved Cream	0·4%	0·4%
C/3130	Cream	Labelled Pure Rich Sterilized	Absent
C/3131	Cream	Labelled Pure Thick	Absent
C/3163	Preserved Cream	0·4%	0·4%
C/3164	Preserved Cream	0·4%	0·4%
C/3165	Preserved Cream	0·4%	0·4%
C/3166	Cream	No label	0·3%
C/3167	Preserved Cream	0·4%	0·1%
C/3191	Cream	Labelled Pure Rich Sterilized	Absent
C/3192	Cream	No label	0·2%
C/3193	Preserved Cream	0·4%	0·1%

INSPECTION OF MEAT AND FISH.

(Return supplied by Mr. H. C. Wilkins, Superintendent of Markets.)

Five inspectors were engaged in visiting the public and large numbers of private slaughter houses, the remaining three being away on military service. For this purpose they made 9,206 visits in addition to the constant work carried on at the public slaughter houses and wholesale and retail markets.

The amount of food seized and surrendered was as follows :—

Bad Meat.

Voluntarily surrendered	3,447	lots.
Seized by Inspectors	6	,,
Weight destroyed	248	tons.
Persons prosecuted	2	
Penalties inflicted	£20	

Bad Fish, Poultry, etc.

Voluntarily surrendered	1,118	lots.
Seized	12	,,
Weight destroyed	175	tons.
Persons prosecuted	1	
Penalties inflicted	£20	

Bad Fruit, etc.

Voluntarily surrendered	75	lots.
Seized	1	,,
Weight destroyed	17	tons.
Persons prosecuted	0	
Penalties inflicted	0	

FACTORIES AND WORKSHOPS.

I. Inspection of Factories, Workshops and Workplaces.

(Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.)

Premises. (1)	Number of		
	Inspections. (2)	Written Notices. (3)	Prosecutions. (4)
Factories (including Factory Laundries)	1139	25	—
Workshops (including Workshop Laundries)	7012	70	—
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	336	11	—
Total	8487	106	—
Revisits paid	2904	—	—

II.—Defects found in Factories, Workshops and Workplaces.

Particulars. (1)	Number of Defects.			Number of Prosecutions. (5)
	Found. (2)	Remedied. (3)	Referred to H.M. Inspector. (4)	
Nuisances under the Public Health Acts :—				
Want of cleanliness	1214	1201	—	—
Want of ventilation	8	8	—	—
Overcrowding	—	—	—	—
Want of drainage of floors	9	9	—	—
Other nuisances	581	577	—	—
Sanitary accommodation—				
Insufficient	85	85	—	—
Unsuitable or defective	1243	1238	—	—
Not separate for sexes	43	42	—	—
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (s. 101)	—	—	—	—
Breach of special sanitary requirements for bakehouses (ss. 97 to 100) ...	—	—	—	—
Other offences (excluding offences relating to outwork which are included in Part 3 of this Report) ...	—	—	—	—
Total	3183	3160	—	—

III.—Home Work.

NATURE OF WORK.	Outworkers' Lists, Section 107.									Outwork in Unwholesome Premises, Section 108.			Outwork in Infected Premises, Sections 109, 110		
	Lists received from Employers						Notices served on Occupiers as to keeping or sending Lists.	Prosecutions.							
	Sending twice in the year.			Sending once in the year.				Failing to keep or permit inspection of Lists.	Failing to send Lists.	Instances.	Notices served.	Prosecutions.	Instances.	Orders made (S. 110).	Prosecutions (Sections 109, 110)
	Lists.	Outworkers.		Lists.	Outworkers.										
		Contractors	Workmen.		Contractors.	Workmen.									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Wearing apparel—(1) making, etc.	352	929	1255	42	87	97	—	—	—	—	—	—	—	—	—
(2) cleaning and washing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Household linen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lace, lace curtains and nets	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Curtains and furniture hangings	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Furniture and upholstery	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Electro-plate	34	178	37	2	—	6	—	—	—	—	—	—	—	—	—
File making	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—
Brass and brass articles	20	52	142	2	4	2	—	—	—	—	—	—	—	—	—
Fur pulling	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cables and chains	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anchors and grapnels	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cart gear	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Locks, latches and keys	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Umbrellas, etc.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Artificial flowers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nets, other than wire nets	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tents	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sacks	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Racquet and tennis balls	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paper, etc., boxes, paper bags	46	—	266	6	—	31	—	—	—	—	—	—	—	—	—
Brush making	12	—	81	1	—	1	—	—	—	—	—	—	—	—	—
Pea picking	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feather sorting	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carding, etc., of buttons, etc.	58	59	1378	10	—	61	—	—	—	—	—	—	—	—	—
Stuffed toys	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Basket making	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chocolates and sweetmeats	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	524	1222	3159	63	91	198	661	—	—	—	—	—	—	—	—

IV.—Registered Workshops.

Workshops on the Register (s. 131) at the end of the year	4,249

V.—Other Matters.

	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Acts (s.133, 1901)	7
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) ... ... — Notified by H.M. Inspector ...	177
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) ... ... — Reports (of action taken) sent to H.M. Inspector ...	216
Other	—
Underground bakehouses (s. 101) :—	
Certificates granted during the year	—
In use at the end of the year	7

HEALTH VISITORS' WORK.

(Report by Blanche Gardiner, B.A., Superintendent of Health Visitors.)

During the year 1917 the increase in the total number of Visitors (Health, Tuberculosis and Infant) from 52 to 62 was again mainly due to additional Infant Visitors being appointed for the Municipal Maternity and Infant Welfare Centres.

While, as the name implies, Tuberculosis Visitors deal with cases of tuberculosis (*see page* 19) and Infant Visitors devote themselves mainly to working amongst infants (and also children 1-5 years), the work of the Health Visitors is largely indicated by the following table.

In addition, special enquiries or reports about numerous extraneous matters, more or less pertaining to health, are generally allotted to the Health Visitors, who all prove themselves willing and capable to help in any emergency, or when unforeseen work arises, incidental on the war, or food difficulties, etc.

Primary Visits :—

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Year.
Systematic	142	124	867	1,355	2,488
Births	1,492	1,615	2,054	1,361	6,522
Ophthalmia Neonatorum	32	11	18	20	81
Diarrhœa Deaths	63	15	34	24	136
Measles	6,353	6,617	581	384	13,935
German Measles	176	170	28	29	403
Chicken-Pox	752	825	400	777	2,754
Whooping Cough	147	403	490	1,004	2,044
Mumps	424	541	212	442	1,619
Vermin	21	21	24	19	85
Ringworm	1	2	3	8	14
Scabies	389	349	208	381	1,327
Impetigo	77	23	34	68	202
Blight	38	4	6	10	58
Unclassified School Cases	881	744	460	842	2,927
Schools	68	32	73	107	280
Reported Overcrowding	6	6	2	2	16
Country Holiday Inspections	4	–	6	5	15
Health Talks	4	1	1	6	12
Other Visits	1,036	906	2,723	1,365	6,030
Total	12,106	12,409	8,224	8,209	40,948
Re-Visits	2,647	2,926	4,230	5,142	14,945
Useless Visits (*i.e.*,out, removed, etc.) ...	1,657	1,938	1,793	1,710	7,092
Grand Total ...	16,404	17,273	14,247	15,061	62,985

While 6,522 primary visits *re* births were made by the Health Visitors, 8,973 primary visits were paid by the Infant Visitors. As more Maternity and Infant Welfare Centres are opened, and the infants born in the surrounding areas are under the care of the Infant Visitors attached to the Centres, so proportionately fewer babies are visited by the Health Visitors. This is often a matter of regret to them, as visiting the babies is considered the pleasantest part of what is often an unpleasant (though certainly more varied) work.

Ophthalmia Neonatorum.

Of the 237 cases notified during the year the Infant Visitors dealt with the 136 cases occurring in the districts around the Infant Centres; and the Health Visitors with the remaining ones.

Baby Week in Birmingham.

A special combined effort was made by the various Municipal and voluntary agencies, on lines suggested by the National Baby Week Council (London), as was evidenced in every part of the city. So much is always being done in Birmingham, throughout the whole year, for the welfare of infants, that Baby Week was more or less an accentuation or concentration of what is ordinarily being done.

Scabies.

There was a large increase in the number of homes visited for scabies this year, 1,327 primary visits being paid, compared with 198 during the year 1916. These numbers do not represent the total of cases, as, in addition to those originally reported, quite fifty per cent. more adults and children were found, on visiting, to be suffering from the disease. The spread of it amongst soldiers and civilians is regrettable; and possibly, if it were termed generally by the less pleasant name of "Itch," instead of the more euphemistic one of scabies, the sufferers and those in charge of them might strive for a more speedy recovery.

Food.

A window exhibit was arranged (at the request of the Citizens' Committee) by the Health Visitors' Department at the War Economy Centre (Windsor Arcade), the keynote being that "the Saving of Infant Life is Economy"; and "Contamination of Food is waste." Demonstrations bearing on this were also given each afternoon.

Once a fortnight, from May to August, the whole staff of Visitors were questioned in detail, and gave useful information, which was embodied in reports, respecting what they had noted in the course of their visits regarding the shortage of food; difficulties of obtaining it; waste of food, etc., during war-time.

The fact that the Visitors were fully cognizant also of pre-war conditions, and that they themselves had their own house-keeping and shopping to do, after their day's work was finished, made them realise the more fully the difficulties and abnormal conditions then existent as to food.

All this was preliminary to the work subsequently done by the Local Food Committee, and before the rationing scheme came into force.

TABLE I.

Vital Statistics of Whole District during 1917 *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.			
		Uncorrected	Nett.				Non-residents registered in the District.	Residents not registered in the District.	Under 1 year of Age.		At all Ages.	
		Number.	Number.	Rate.	Number.	Rate.			Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1901	760,989	?	23,866	31·4	14,089	18·6	?	?	4,205	176	13,290	17·5
1902	768,757	?	24,246	31·2	12,973	16·7	?	?	3,503	144	12,650	16·3
1903	776,604	?	23,956	30·9	12,433	16·0	?	?	3,525	147	12,224	15·8
1904	784,532	?	24,260	31·0	14,047	17·9	?	?	4,346	179	13,882	17·7
1905	792,540	?	22,939	29·0	12,132	15·3	?	?	3,224	141	11,948	15·1
1906	800,631	?	23,484	29·4	12,983	16·2	?	?	3,682	157	12,737	15·9
1907	808,803	?	23,233	28·8	12,567	15·6	?	?	3,084	133	12,356	15·3
1908	817,060	?	23,986	29·1	12,782	15·5	?	?	3,124	130	12,596	15·3
1909	825,400	?	22,555	27·4	12,573	15·3	?	?	2,727	121	12,398	15·1
1910	833,826	?	22,288	26·8	11,200	13·5	?	?	2,570	115	11,001	13·2
1911	842,337	?	21,975	26·1	12,760	15·2	?	?	3,298	150	12,623	15·0
1912	850,947	22,186	22,168	26·1	12,131	14·3	338	212	2,470	111	12,005	14·1
1913	859,644	23,858	23,812	27·3	13,116	15·0	362	208	3,070	129	12,962	14·9
1914	882,534	23,268	23,207	26·4	13,115	14·9	346	257	2,839	122	13,026	14·8
1915	891,234	21,217	21,187	23·8	12,907	14·5	448*	357	2,490	118	12,816	14·4
1916	895,678	20,663	20,618	23·1	12,268	13·7	603*	416	2,142	104	12,081	13·5
Averages for years 1901-1916	824,470	?	22,986	28·0	12,755	15·5	?	?	3,144	136	12,537	15·2
1917	900,000	17,681	17,706	19·7	11,252	12·5	569*	591	1,791	101	11,274	12·6

Rates in columns 5, 7, and 13 calculated per 1,000 of estimated population.

Total population at all ages at Census of 1911, 840,202. Area of District in acres, 43,537. Number of inhabited buildings, 177,030.

Average Number of Persons per house, 4·7.

* Including all members of the Military and Naval Forces, whether residents of Birmingham or not.

TABLE II.

Causes of, and Ages at, Death during the Year ending December 29th, 1917.

CAUSE OF DEATH.	AGES.																Males	Females.	Persons.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-			
I.—General Diseases.																			
Enteric Fever	—	—	—	—	—	—	—	—	1	4	—	1	1	—	—	—	7	—	7
Typhus Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaria	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	1
Smallpox—																			
(*a*) Vaccinated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Not Vaccinated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*c*) Doubtful	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Measles	66	125	77	30	14	18	1	—	1	—	1	—	—	—	—	—	156	177	333
German Measles	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	2	4
Scarlet Fever	2	2	1	1	2	4	—	—	—	—	—	—	—	—	—	—	6	6	12
Whooping Cough	41	47	22	8	7	6	—	—	—	—	—	—	—	—	—	—	60	71	131
Diphtheria	2	11	20	23	8	35	6	2	2	—	—	3	—	—	—	—	49	63	112
Croup	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Influenza	7	—	1	—	—	2	1	4	2	4	14	14	15	18	13	3	46	52	98
Miliary Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Asiatic Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera Nostras	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dysentery	—	—	—	1	—	—	—	—	—	1	—	3	1	—	—	—	2	4	6
Plague	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leprosy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Erysipelas	4	—	—	—	—	—	2	1	—	—	3	2	3	5	1	—	9	12	21
Other Epidemic Diseases	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3
Pyæmia, Septicæmia	1	—	—	1	1	1	—	1	—	1	—	2	1	—	—	—	3	6	9
Glanders	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anthrax (Splenic Fever)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rabies	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tetanus	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	3	—	3
Mycoses	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pellagra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Beri-Beri	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pul. Tuberculosis (not acute)	4	2	9	2	2	12	15	75	92	239	311	213	100	30	2	—	668	440	1108
Acute Phthisis	1	—	—	—	—	1	—	4	7	10	9	6	4	1	—	—	22	21	43
Acute Miliary Tuberculosis	1	3	1	—	1	3	2	—	2	1	3	1	—	—	—	—	12	6	18
Tuberculous Meningitis	15	25	11	6	6	17	7	3	3	4	—	—	1	—	—	—	52	46	98
Tuberculosis (Periton. Intest.)	15	9	8	6	2	6	9	2	1	1	—	—	—	1	—	—	25	35	60
Tuberculosis (Spinal Column)	—	1	—	—	2	1	2	2	2	1	2	2	—	—	—	—	5	10	15
Tuberculosis (Joints)	—	—	—	—	—	2	—	2	—	1	—	—	1	2	—	—	7	1	8
Tuberculosis (other organs)	2	1	—	—	—	—	—	1	—	3	4	—	—	—	1	—	6	6	12
Disseminated Tuberculosis	4	3	3	2	2	8	4	4	2	4	1	4	1	—	—	1	24	19	43
Rickets, Softening of Bones	15	11	5	—	—	—	—	—	—	1	1	—	—	—	—	—	18	15	33
Syphilis	23	4	4	—	—	—	—	1	1	2	5	4	1	—	—	—	21	24	45
Other Venereal Diseases	2	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	1	3
Cancer (buccal cavity)	—	—	—	—	—	—	—	—	—	—	4	8	16	7	7	1	35	8	43
Cancer (stomach, liver, etc.)	—	—	—	—	—	1	—	—	1	2	27	47	103	67	28	1	145	132	277
Cancer (periton., intest., rectum)	—	—	—	—	—	—	—	—	2	5	16	33	37	58	25	1	89	88	177
Cancer (female genital organs)	—	—	—	—	—	—	—	1	—	6	25	39	38	20	3	—	—	132	132
Cancer (breast)	—	—	—	—	—	—	—	—	—	3	14	30	19	20	11	1	1	97	98
Cancer (skin)	—	—	—	—	—	—	—	—	—	—	1	2	2	3	1	—	5	4	9
Cancer (other organs)	—	—	—	—	—	2	—	4	3	5	21	32	49	44	16	—	117	59	176
Other Tumours (undefined)	—	—	—	—	—	—	—	1	—	—	1	1	1	—	2	—	4	2	6
Rheumatic Fever	—	—	—	—	—	6	4	4	3	5	7	5	1	1	—	—	19	17	36
Ch. Rheumatism, Osteo-Arthritis	—	—	—	—	—	—	—	—	—	—	2	4	6	14	4	1	7	24	31
Gout	—	—	—	—	—	—	—	—	—	1	—	—	5	5	—	—	9	2	11
Scurvy	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1
Diabetes	—	—	—	1	—	—	1	1	3	6	7	7	26	14	6	1	30	43	73

TABLE II.—*continued.*

CAUSE OF DEATH.	AGES.																Males	Females	Persons.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-			
Exophthalmic Goitre	—	—	—	—	—	—	1	—	1	2	1	2	2	—	—	—	—	9	9
Addison's Disease	—	—	—	—	—	—	—	—	1	—	4	1	2	—	—	—	4	4	8
Leucocythæmia, Lymphad'oma	—	1	—	—	—	4	—	—	—	1	1	1	3	—	—	—	7	4	11
Anæmia, Chlorosis	1	—	1	1	—	—	1	3	1	5	5	8	12	4	1	—	23	20	43
Other General Diseases ...	—	—	—	2	—	—	1	1	—	2	—	—	1	—	1	1	5	4	9
Alcoholism	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	1
Chronic Lead Poisoning ...	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	2	—	2
Other Poisonings (occupational)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ditto do. (not occupational)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
II.—Nervous System.																			
Encephalitis	—	1	—	—	—	—	1	1	1	2	2	2	1	—	—	—	10	1	11
Cerebro-Spinal Fever	3	1	4	—	—	4	2	3	1	1	2	—	1	—	—	—	11	11	22
Meningitis (other forms) ...	24	13	6	2	5	12	2	—	2	2	2	3	1	2	—	—	42	34	76
Locomotor Ataxy	—	—	—	—	—	—	—	—	—	—	3	5	9	1	—	—	13	5	18
Acute Poliomyelitis	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
Other Dis., Spinal Cord ...	—	—	—	—	—	—	—	2	—	5	8	12	17	17	3	1	30	35	65
Cerebral Hæmorrhage, Apoplexy	2	—	1	—	—	—	—	—	1	3	15	66	120	148	113	16	197	288	485
Softening of Brain	—	—	—	—	—	—	—	—	—	—	1	1	8	8	8	2	17	11	28
Paralysis (no specified cause) ...	—	—	1	—	—	—	1	—	—	1	4	5	13	16	9	—	26	24	50
General Paralysis of Insane ...	—	—	—	—	—	—	—	—	1	8	20	19	9	—	1	—	54	4	58
Other Mental Alienation ...	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	4	4
Epilepsy	—	—	—	1	—	5	2	4	8	6	12	21	15	9	1	—	47	37	84
Convulsions (5 and over) ...	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	1
Convulsions (under 5)	107	23	7	2	—	—	—	—	—	—	—	—	—	—	—	—	85	54	139
Chorea	—	—	—	—	—	2	—	—	—	1	—	—	1	—	—	—	1	3	4
Hysteria, Neuralgia, Neuritis ...	—	—	—	—	—	—	—	—	—	—	2	3	2	2	—	—	1	8	9
Other Dis. of Nervous System...	—	4	1	—	2	3	1	4	1	3	6	4	6	—	4	1	18	22	40
Diseases of Eyes and Annexa...	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1
Mastoid Disease	1	—	—	—	—	1	—	1	—	1	1	—	1	—	—	—	3	3	6
Other Diseases of Ears ...	4	—	1	1	1	2	3	1	3	1	3	1	1	1	—	—	8	15	23
III.—Circulatory System.																			
Pericarditis	—	2	—	1	1	—	1	—	1	—	1	1	2	1	—	—	6	5	11
Acute Endocarditis	1	—	—	—	—	4	6	2	1	10	8	5	7	—	—	—	14	30	44
Valvular Disease	2	1	—	1	—	2	8	14	11	26	49	78	97	91	41	1	186	236	422
Fatty Degeneration of Heart ...	—	—	—	—	—	—	—	—	—	1	1	6	15	9	7	—	17	22	39
Other Organic Diseases of Heart	2	—	—	—	—	5	5	8	5	18	42	93	166	284	180	29	408	429	837
Angina Pectoris	—	—	—	—	—	—	—	—	—	—	—	1	10	2	2	1	11	5	16
Aneurysm	—	—	—	—	—	—	—	—	1	1	1	6	4	1	—	—	12	2	14
Arterio Sclerosis	—	—	—	—	—	—	—	—	—	—	—	13	36	47	48	8	95	57	152
Other Diseases of Arteries ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cer. Embolism, Thrombosis ...	—	—	—	—	—	—	—	3	—	3	6	14	28	41	23	3	63	58	121
Other Embolism and Throm. ...	—	1	—	—	—	—	—	—	—	1	2	1	—	2	1	—	2	6	8
Diseases of Veins	—	—	—	—	—	—	—	—	—	—	1	3	1	—	—	—	2	3	5
Status Lymphaticus	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Other Dis. of Lymphatic System	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1	2
Other Dis. of Circulatory System	—	—	—	—	—	—	1	—	—	—	—	1	—	—	1	—	3	—	3
IV.—Respiratory System.																			
Diseases of Nasal Fossæ ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diseases of Larynx	5	2	4	2	2	1	—	—	—	1	1	2	1	—	—	—	11	10	21
Diseases of Thyroid Body ...	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1
Bronchitis	115	47	8	6	4	6	2	—	1	8	24	64	156	245	182	42	468	442	910
Broncho-pneumonia	161	111	36	16	7	7	1	1	1	7	8	5	23	22	13	2	214	207	421
Lobar Pneumonia	6	6	3	3	2	3	6	3	7	20	28	34	26	21	3	1	110	62	172
Pneumonia (type not stated)...	30	19	13	10	3	4	7	6	8	19	29	29	25	34	13	4	139	114	253
Pleurisy	—	2	—	1	1	1	1	—	—	1	6	5	2	3	2	—	19	6	25
Pul. Cong., Pul. Apoplexy ...	6	2	1	—	—	—	—	—	—	—	1	2	4	3	10	2	13	18	31
Gangrene of Lung	—	—	—	—	—	—	—	—	—	1	—	1	—	1	—	—	1	2	3

TABLE II.—*continued.*

CAUSE OF DEATH.	AGES.																Males	Females.	Persons.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-			
Asthma	—	1	—	—	—	—	—	—	—	3	4	4	11	8	7	—	18	20	38
Pulmonary Emphysema	—	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	3	1	4
Fibroid Disease of Lung	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	1	2
Other Dis. of Respiratory System	—	—	—	—	—	—	—	—	—	—	2	1	2	2	—	—	3	4	7
V.—Digestive System.																			
Diseases of Teeth and Gums	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	1
Other Dis. of Mouth and Annexa	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	2	3
Diseases of Pharynx, Tonsillitis	—	—	—	1	—	1	—	—	2	1	—	1	1	2	—	—	4	5	9
Diseases of the Œsophagus	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1
Perforating Ulcer of Stomach	—	—	—	—	—	—	—	—	5	9	10	9	12	10	2	—	31	26	57
Inflammation of Stomach	37	5	3	—	5	3	2	—	—	2	3	2	10	8	6	2	52	36	88
Other Diseases of Stomach	1	—	—	—	—	—	—	—	—	—	—	—	4	3	1	1	8	2	10
Diarrhœa, Enteritis	220	46	10	5	2	3	3	3	2	4	5	7	18	23	13	2	187	179	366
Ankylostomiasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Intestinal Parasites	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Appendicitis	1	—	1	—	1	12	8	6	1	8	7	5	8	1	—	—	31	28	59
Hernia	2	—	1	—	—	—	—	1	—	—	6	8	12	10	6	1	17	30	47
Intestinal Obstruction	8	2	—	1	—	1	1	—	—	3	1	2	11	7	8	2	20	27	47
Other Diseases of Intestines	1	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	2	1	3
Acute Yellow Atrophy of Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydatid of Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cirrhosis of Liver	—	—	1	—	—	—	—	1	—	1	6	15	13	5	1	—	23	20	43
Biliary Calculi	—	—	—	—	—	—	—	—	—	—	3	2	4	7	—	—	7	9	16
Other Diseases of Liver	—	—	—	—	2	—	—	—	—	1	1	7	4	6	—	—	10	11	21
Diseases of Spleen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Peritonitis (cause unstated)	1	—	—	2	1	1	—	—	1	—	—	—	4	—	1	—	6	5	11
Other Dis. of Digestive System	—	—	—	—	—	—	—	1	—	2	—	2	—	—	—	—	3	2	5
VI.—Genito-Urinary System.																			
Acute Nephritis	1	2	1	—	1	—	2	2	1	2	1	2	2	2	—	—	9	10	19
Bright's Disease	—	—	1	1	—	—	4	2	5	13	41	61	64	53	24	2	153	118	271
Chyluria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Dis. of Kidney & Annexa	—	—	—	—	—	—	—	—	—	1	1	3	—	1	—	—	2	4	6
Calculi of Urinary Passages	—	—	—	—	—	—	—	—	—	1	2	1	—	—	—	—	1	3	4
Diseases of Bladder	—	—	—	—	—	—	—	—	—	—	1	3	5	6	10	—	16	9	25
Diseases of Urethra, etc.	—	—	—	—	—	—	—	—	—	—	1	7	1	2	1	—	12	—	12
Diseases of Prostate	—	—	—	—	—	—	—	—	—	—	—	1	6	13	11	3	34	—	34
Diseases of Male Genital Organs	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1
Uterine Hæmorrhage	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Uterine Tumour	—	—	—	—	—	—	—	—	—	1	2	4	1	1	—	—	—	9	9
Other Diseases of Uterus	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	4	4
Ovarian Cyst, Tumour	—	—	—	—	—	—	—	—	—	1	—	—	1	2	1	—	—	5	5
Other Dis. of Female Organs	—	—	—	—	—	—	—	1	—	2	1	1	—	—	—	—	—	5	5
Diseases of Breast	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VII.—The Puerperal State.																			
Accidents of Pregnancy	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1
Puerperal Hæmorrhage	—	—	—	—	—	—	—	—	1	2	5	—	—	—	—	—	—	8	8
Other Accidents of Childbirth	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	—	—	3	3
Puerperal Fever	—	—	—	—	—	—	—	—	5	15	6	—	—	—	—	—	—	26	26
Puerperal Alb'ria & Convulsions	—	—	—	—	—	—	—	1	1	2	—	—	—	—	—	—	—	4	4
Phleg. Dolens, Embolism	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	2	2
Puerperal Insanity	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	2	2
Puerperal Diseases of Breast	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VIII.—Skin & Cellular Tissue.																			
Senile Gangrene	—	—	—	—	—	—	—	—	—	—	—	—	2	12	13	1	13	15	28
Gangrene (other types)	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	2	—	2
Carbuncle, Boil	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	1
Phlegmon, Acute Abscess	1	—	1	—	—	—	—	—	—	1	1	1	2	2	—	—	6	3	9
Dis. of Integumentary System	6	1	—	—	—	—	—	—	—	—	1	2	2	1	1	—	9	5	14

TABLE II.—*continued.*

CAUSE OF DEATH.	AGES.																Males	Females.	Persons.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-			
IX.—Bones and Organs of Locomotion.																			
Diseases of Bones	1	—	—	1	—	2	2	1	—	—	—	—	—	—	1	—	6	2	8
Diseases of Joints	—	—	—	—	—	—	—	—	—	—	1	—	1	1	1	—	2	2	4
Amputations	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Dis. of Locomotor System	—	—	—	1	—	—	—	—	—	—	—	—	1	1	—	—	1	2	3
X.—Malformations.																			
Congenital Malformations ...	77	3	1	1	—	2	—	—	—	—	—	—	—	—	—	—	47	37	84
XI.—Diseases of Early Infancy.																			
Premature Birth	389	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	219	170	389
Infantile Debility, Icterus, etc.	258	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	142	116	258
Other Diseases of early infancy	46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29	17	46
Lack of Care (under 3 months)	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	6
XII.—Old Age.																			
Old Age	—	—	—	—	—	—	—	—	—	—	—	—	5	147	325	134	271	340	611
XIII.—External Causes.																			
Suicide—																			
By Poison	—	—	—	—	—	—	—	—	1	1	2	1	—	—	—	—	3	2	5
By Asphyxia	—	—	—	—	—	—	—	—	—	3	1	1	—	1	—	—	2	4	6
By Hanging, Strangulation...	—	—	—	—	—	—	—	—	—	—	3	3	2	2	1	—	7	4	11
By Drowning	—	—	—	—	—	—	—	—	—	—	3	3	—	—	—	—	5	1	6
By Firearms	—	—	—	—	—	—	—	—	—	3	1	2	—	—	—	—	5	1	6
By Cutting or Piercing ...	—	—	—	—	—	—	—	—	—	4	6	3	2	2	—	—	12	5	17
By Jumping from high place	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	1	1	2
By Crushing	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1
Other Suicides	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	1
Poisoning by Food	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Acute Poisonings ...	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Conflagration	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Burns (conflagration excepted)	5	10	11	7	14	18	3	3	1	2	2	1	4	2	3	1	29	58	87
Deleterious Gases, Suffocation	40	2	—	—	—	—	—	—	—	2	1	—	1	1	—	—	24	23	47
Accidental Drowning	—	—	—	4	—	5	6	4	—	1	3	1	4	—	1	—	21	8	29
Injury—																			
By Firearms	—	—	—	—	—	—	2	1	—	—	—	—	—	—	—	—	1	2	3
By Cutting or Piercing ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
By Fall	1	1	1	—	—	—	1	—	—	—	4	13	14	15	16	4	39	31	70
In Mines and Quarries ...	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	1
By Machines	—	—	—	—	—	—	1	2	—	2	1	1	3	2	—	—	12	—	12
By Other Crushing	—	1	1	—	—	8	11	2	4	3	3	8	14	9	3	—	53	14	67
By Animals	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	1
Starvation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Excessive Cold	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	1
Effects of Heat...	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
Lightning	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	1
Electricity	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	1
Homicide by Firearms	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1
Homicide by Cutting or Piercing	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Homicide by other means ...	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	2
Fractures (cause not specified)	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	1	1	3	4
Other Violence	1	1	1	1	1	—	—	—	—	1	1	—	3	—	—	—	8	2	10
XIV.—Ill-Defined Causes.																			
Dropsy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syncope (1 year and under 70)	—	—	—	—	—	—	—	—	1	1	—	1	1	2	—	—	4	2	6
Sudden Death (not defined) ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Heart Failure (1 and under 70)	—	—	2	—	—	1	—	3	—	6	11	15	28	25	—	—	54	37	91
Other ill-defined causes ...	2	12	3	—	2	1	—	1	—	—	—	—	1	—	—	—	9	13	22
Cause not specified	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Totals	1791	570	291	156	104	249	154	207	218	581	946	1195	1559	1731	1244	278	5780	5494	11274

Births and Deaths Registered in, or belonging to, each Ward during the Year ending December 29th, 1917.

Causes of Death.	Acock's Green	All Saints'	Aston	Balsall Heath	Duddeston and Nechells	Edgbaston	Erdington (North)	Erdington (South)	Handsworth	Harborne	King's Norton	Ladywood	Lozells	Market Hall	Moseley and King's Heath	Northfield	Rotton Park	St. Bartholomew's	St. Martin's	St. Mary's	St. Paul's	Saltley	Sandwell	Selly Oak	Small Heath	Soho	Sparkbrook	Sparkhill	Washwood Heath	Yardley	Not Located	City
Enteric Fever	...	...	1	...	...	...	...	1	1	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	...	1	...	7
Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	10	23	33	1	56	1	3	5	3	...	2	8	21	3	1	...	11	22	10	36	28	13	2	4	3	5	15	2	11	1	...	333
German Measles ...	1	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Scarlet Fever	1	...	...	...	...	...	1	3	...	...	...	...	...	1	...	1	2	...	...	...	1	1	...	...	...	1	...	...	...	...	...	12
Whooping Cough ...	3	17	4	1	21	1	2	...	1	1	1	1	...	1	4	1	3	19	8	9	4	3	1	2	7	2	7	...	5	2	...	131
Diphtheria, Croup ...	10	5	4	5	6	3	1	5	1	...	...	4	6	4	1	...	8	...	2	5	5	10	1	4	3	2	3	...	14	...	...	112
Influenza	6	...	6	4	2	5	...	3	5	2	2	2	6	4	3	...	1	1	3	1	7	3	1	7	4	5	1	4	7	1	2	98
Erysipelas	2	...	...	...	1	...	2	...	...	...	1	1	1	1	...	...	...	...	1	1	...	...	...	...	1	2	2	1	2	1	1	21
Pulmonary Tuberculosis	30	62	63	47	68	38	15	27	28	14	17	36	39	32	14	6	55	66	108	84	50	26	18	17	29	25	42	21	53	16	28	1169
Tuberculous Meningitis	3	6	7	5	3	1	2	1	4	...	1	2	5	...	3	...	2	4	8	5	9	2	1	2	4	1	4	4	6	2	1	98
Abdominal Tuberculosis	2	1	3	1	3	...	...	2	3	...	1	3	2	1	...	...	3	4	5	7	2	3	3	...	3	...	1	2	4	...	1	60
Other Tuberculous Dis.	2	9	3	2	3	3	3	2	2	4	1	6	2	1	1	...	3	2	7	6	6	2	2	...	...	2	1	...	1	...	2	78
Cancer	29	36	34	40	43	45	19	11	27	16	16	40	42	23	31	7	55	37	57	32	28	34	17	23	23	31	40	25	27	18	6	912
Rheumatic Fever ...	2	...	2	1	2	...	2	1	1	2	...	...	2	...	2	...	...	4	...	...	...	3	1	...	4	1	2	2	2	...	...	36
Cerebro-Spinal Fever...	1	...	...	1	...	1	...	...	...	...	...	1	1	...	3	...	...	3	1	3	1	...	...	...	2	...	3	...	1	...	...	22
Meningitis	...	2	4	4	5	1	...	...	5	...	...	3	2	2	2	...	2	4	8	9	3	3	3	3	3	2	2	...	2	...	2	76
Acute Poliomyelitis ...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Organic Dis. of Heart...	25	59	78	52	77	55	19	18	34	25	17	38	53	29	40	7	54	68	92	71	57	42	21	18	37	38	56	27	40	14	37	1298
Bronchitis	17	48	47	37	55	22	15	5	15	13	12	30	30	24	18	7	39	55	78	64	56	30	20	16	25	40	29	14	30	11	8	910
Pneumonia	16	29	55	30	65	34	12	19	23	5	14	35	26	21	25	5	26	59	69	64	32	30	7	18	18	15	35	14	26	6	13	846
Other Respiratory Dis.	2	7	6	5	4	8	2	2	4	2	1	8	7	5	2	1	8	9	6	3	5	4	4	9	...	8	2	1	6	1	...	132
Diarrhœa & Enteritis :																																
Under 2 years ...	7	14	12	12	16	8	2	1	1	1	1	15	10	5	2	1	15	25	18	25	19	7	1	3	7	5	9	2	17	2	3	266
Two years and over ...	1	9	7	4	6	6	2	2	2	3	2	2	1	1	4	...	4	5	4	6	6	2	4	4	1	6	2	...	2	1	1	100
Appendicitis, Typhlitis	4	5	...	1	3	1	1	4	1	1	1	...	2	2	3	...	5	1	2	2	...	3	3	4	4	...	2	4	...	...	...	59
Cirrhosis of Liver ...	1	2	...	1	...	1	...	...	1	1	...	1	2	2	3	...	2	1	3	2	3	...	1	3	1	6	3	2	1	...	...	43
Alcoholism	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Nephritis & Bright's Dis	11	8	7	13	16	13	7	5	9	4	3	17	17	7	12	...	16	17	17	22	9	4	2	3	7	7	9	12	7	6	3	290
Puerperal Fever ...	1	1	...	1	2	1	...	2	1	...	1	...	2	...	1	...	2	...	...	1	1	1	...	1	1	...	3	...	3	...	...	26
Other Accidents & Diseases of Pregnancy and Parturition	1	...	1	2	2	...	...	...	...	1	1	...	...	3	...	1	...	...	2	...	...	1	...	1	1	1	2	...	...	...	...	20
Congenital Debility and Malformation, Premature Birth	22	39	43	22	60	12	9	14	17	6	11	31	25	13	7	4	38	51	43	45	29	24	8	11	22	13	44	12	28	12	16	731
Other Diseases peculiar to Infancy	1	4	...	4	1	3	1	2	...	...	5	2	2	2	...	...	1	3	1	2	2	1	1	1	2	...	2	...	2	1	...	46
Accidents or Negligence	9	12	19	13	32	13	3	4	7	1	9	16	11	8	4	3	17	22	18	25	20	12	6	6	6	8	12	6	7	4	7	340
Suicides...	4	3	4	5	2	7	...	1	1	2	...	1	...	...	2	2	2	2	1	1	3	2	1	1	2	1	3	...	2	...	...	55
Other Defined Causes...	77	134	109	160	116	116	46	31	92	65	55	113	107	70	96	26	140	115	152	132	124	64	55	73	78	106	104	64	84	50	66	2820
Ill-defined Causes ...	3	5	5	5	10	2	3	...	...	1	3	7	3	4	1	2	6	8	10	8	5	1	1	3	4	3	4	1	6	3	3	120
Total Deaths ...	304	541	557	480	681	401	173	171	289	170	178	423	427	269	286	74	521	607	730	672	516	331	185	237	302	336	444	220	396	153	200	11274
Deaths under 1 year	41	115	107	59	148	34	21	27	30	12	25	76	60	30	15	8	79	136	116	133	87	59	12	35	50	31	79	28	76	31	31	1791
Births	550	942	1021	714	1089	466	284	339	422	275	325	680	644	337	364	161	847	1032	1037	792	756	609	322	531	531	421	720	311	789	327	68	17706

TABLE IV.

Deaths under 1 year Registered in, or belonging to, each Ward during the Year ending December 29th, 1917.

Causes of Death.	Acock's Green.	All Saints'.	Aston.	Balsall Heath.	Duddeston and Nechells.	Edgbaston.	Erdington (North).	Erdington (South).	Handsworth.	Harborne.	King's Norton.	Ladywood.	Lozells.	Market Hall.	Moseley and King's Heath.	Northfield.	Rotton Park.	St. Bartholomew's.	St. Martin's.	St. Mary's.	St. Paul's.	Saltley.	Sandwell.	Selly Oak.	Small Heath.	Soho.	Sparkbrook.	Sparkhill.	Washwood Heath.	Yardley.	Not Located.	City.
Measles	2	4	5	...	12	...	...	...	2	...	1	1	2	1	...	...	1	6	2	10	6	...	...	1	2	2	4	...	2	...	...	66
Scarlet Fever	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Whooping Cough	...	7	2	...	10	...	1	...	...	...	...	...	...	...	...	...	1	6	2	2	1	1	...	...	2	1	2	...	2	1	...	41
Diphtheria, Croup	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Tuberculous Meningitis ...	2	2	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	1	1	2	...	1	...	1	...	1	...	...	1	...	15
Abdominal Tuberculosis ...	1	1	...	2	...	...	1	...	...	...	...	...	...	1	...	...	1	...	1	3	...	1	...	...	...	...	...	1	2	...	...	15
Other Tuberculous Diseases	...	3	...	...	...	...	...	...	...	...	...	1	2	...	...	...	1	...	2	...	1	1	...	...	...	...	...	1	2	...	...	15
Rickets	...	...	3	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	6	1	...	...	...	1	...	...	...	1	...	...	...	12
Syphilis	...	3	1	2	...	1	...	...	...	...	...	2	1	1	...	...	1	3	1	...	3	...	...	...	1	...	...	...	1	...	...	15
Cerebro-Spinal Fever...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	1	...	...	2	...	...	23
Meningitis (not Tuberculous)	...	2	1	1	2	...	...	...	1	...	...	1	1	1	...	...	1	1	3	3	...	2	...	2	1	...	...	...	1	24	3
Convulsions	...	6	2	2	9	1	3	1	1	2	2	8	3	2	2	...	2	9	8	7	7	3	...	6	1	6	3	3	4	3	1	107
Bronchitis	5	9	9	3	7	3	...	...	2	2	2	3	1	1	1	2	3	7	10	8	5	5	...	7	5	1	4	2	4	4	...	115
Pneumonia (all forms)	2	12	12	7	18	3	1	5	3	...	4	7	7	2	1	...	7	21	15	23	7	10	1	3	4	1	7	3	6	1	4	197
Gastritis	...	...	5	2	2	...	1	...	...	1	...	2	2	1	1	...	1	6	...	3	2	...	...	...	1	1	1	...	4	2	...	38
Diarrhœa, Enteritis, etc.	5	13	11	11	12	7	2	1	1	1	...	14	10	3	2	1	14	19	16	18	15	5	1	2	6	3	5	2	15	2	3	220
Congenital Malformations	3	2	4	3	5	1	...	3	3	1	2	3	2	2	1	...	4	4	5	3	2	4	1	2	3	2	4	1	3	3	1	77
Premature Birth ...	9	19	24	13	30	8	7	7	9	5	5	11	15	5	3	4	19	30	21	22	14	17	6	4	11	5	25	7	19	3	12	389
Atrophy, Debility, and Marasmus	10	18	13	5	25	2	2	4	5	...	3	14	7	6	3	...	14	16	15	19	12	3	1	4	8	6	15	4	5	6	3	248
Atelectasis	...	...	...	1	...	1	...	...	...	...	4	1	1	1	...	...	...	...	...	2	1	...	...	1	...	...	1	...	...	...	...	14
Injury at Birth ...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...	...	...	3	...	...	...	1	...	1	1	...	...	...	...	1	...	10
Neglect (under three months)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Suffocation (Overlying	...	2	2	3	8	...	...	...	...	...	...	3	...	...	...	...	3	2	3	3	3	...	...	...	1	1	3	1	...	...	...	38
Other causes	5	12	9	6	5	6	3	3	2	...	2	3	5	2	...	1	4	3	4	4	6	6	1	1	2	2	2	3	7	4	6	119
All Causes ...	41	115	107	59	148	34	21	27	30	12	25	76	60	30	15	8	79	136	116	133	87	59	12	35	50	31	79	28	76	31	31	1791

TABLE V.

Cases of Infectious Disease notified during each week of the year 1917.

Week. Number.	Week. Ending.	Enteric Fever.	Smallpox.	Measles.	German Measles.	Scarlet Fever.	Diphtheria.	Erysipelas.	Pulmonary Tuberculosis.	Tubercular Meningitis.	Tuberculosis of Peritoneum and Intestines.	Tuberculosis of Spinal Column	Tuberculosis of Joints.	Tuberculosis of other Organs.	Disseminated Tuberculosis.	Cerebro-Spinal Fever.	Poliomyelitis	Puerperal Fever.	Ophthalmia Neonatorum.	Total.
	1917.																			
1	January 6	2	—	319	7	19	13	11	61	—	1	—	—	2	2	4	—	3	5	449
2	,, 13	—	—	327	9	32	14	6	57	1	1	—	—	2	—	1	—	2	6	458
3	,, 20	—	—	296	8	23	7	9	61	2	1	—	1	5	—	1	—	1	8	423
4	,, 27	—	—	209	5	17	12	9	62	1	1	1	—	2	—	—	—	4	3	326
5	February 3	—	—	306	2	34	20	7	70	—	1	—	—	4	—	—	—	2	6	452
6	,, 10	—	—	364	17	24	22	8	63	—	—	—	2	2	1	—	1	2	3	509
7	,, 17	—	—	456	9	15	12	6	58	2	2	—	1	6	1	1	1	4	3	577
8	,, 24	—	—	583	32	29	11	6	61	4	1	—	—	10	—	—	—	3	3	743
9	March 3	3	—	713	22	24	19	13	88	—	2	—	—	6	2	1	—	3	4	900
10	,, 10	—	—	774	36	22	9	10	53	—	—	—	—	7	—	—	—	2	4	917
11	,, 17	—	—	863	42	29	18	13	59	—	1	1	1	4	2	—	—	2	10	1045
12	,, 24	—	—	952	19	25	14	12	71	3	3	—	1	11	1	—	—	2	2	1116
13	,, 31	—	—	959	23	15	8	10	74	2	4	—	1	8	—	4	1	3	9	1121
14	April 7	—	—	795	19	14	12	6	59	3	1	—	1	8	—	1	—	3	5	927
15	,, 14	—	—	636	28	19	6	5	60	2	3	—	1	3	—	1	—	3	—	767
16	,, 21	1	—	932	38	10	11	12	73	1	2	1	1	12	—	1	—	2	7	1104
17	,, 28	—	—	790	26	21	16	9	64	1	4	—	1	10	—	—	—	4	7	953
18	May 5	—	—	691	16	20	11	8	70	2	1	—	—	9	—	1	—	3	6	838
19	,, 12	1	—	626	11	25	14	6	76	1	2	1	—	4	—	—	—	2	6	775
20	,, 19	—	—	650	16	20	10	4	63	—	1	1	—	10	—	—	—	—	2	777
21	,, 26	1	—	599	11	26	13	5	76	—	2	—	—	5	—	—	—	4	4	746
22	June 2	—	—	457	7	16	16	6	49	2	2	—	—	4	—	—	—	1	2	562
23	,, 9	—	—	443	10	23	16	10	62	3	4	—	1	7	1	—	—	1	3	584
24	,, 16	1	—	331	3	17	19	8	66	2	4	—	1	7	—	1	—	3	1	464
25	,, 23	1	—	232	5	16	5	5	84	2	2	1	—	4	—	—	—	1	3	361
26	,, 30	2	—	170	4	7	12	5	57	1	—	1	1	5	—	2	—	1	6	274
27	July 7	3	—	133	3	21	12	2	67	1	4	—	1	7	—	—	—	2	5	261
28	,, 14	—	—	104	3	20	15	—	43	2	1	—	—	12	2	1	1	1	5	210
29	,, 21	—	—	88	—	19	17	5	65	1	1	—	1	1	—	—	1	3	—	202
30	,, 28	—	—	69	4	19	19	7	46	—	1	—	—	4	1	—	—	2	4	176
31	August 4	1	—	63	4	12	11	4	42	1	1	—	—	2	1	—	—	—	7	149
32	,, 11	—	—	22	1	19	8	5	39	—	2	—	1	2	1	1	—	1	2	104
33	,, 18	—	—	35	—	25	12	7	42	1	3	—	—	4	1	—	—	3	4	137
34	,, 25	—	—	18	—	6	15	3	43	—	1	—	2	3	1	—	—	1	4	97
35	September 1	—	—	12	—	14	17	6	48	—	—	—	—	4	—	1	—	—	3	105
36	,, 8	—	—	15	—	21	12	5	57	—	3	—	—	3	1	1	1	—	2	121
37	,, 15	—	—	17	—	20	18	8	59	—	1	—	—	5	1	1	—	1	11	142
38	,, 22	1	—	15	4	17	13	3	57	—	1	—	—	3	1	—	—	—	5	120
39	,, 29	1	—	10	3	22	18	4	70	—	1	—	—	11	—	—	1	—	8	149
40	October 6	—	—	37	3	22	17	6	54	1	2	—	—	6	—	—	—	1	5	154
41	,, 13	—	—	38	—	31	21	7	45	1	3	1	—	3	1	—	—	—	4	155
42	,, 20	—	—	36	2	27	11	10	67	1	5	—	1	5	1	—	1	1	6	174
43	,, 27	—	—	33	2	36	12	1	58	—	2	—	—	3	—	—	—	2	4	153
44	November 3	—	—	20	2	30	21	16	67	2	—	—	—	4	—	—	—	3	9	174
45	,, 10	—	—	31	—	31	16	14	48	—	2	—	2	5	—	1	1	1	3	155
46	,, 17	1	—	33	—	32	17	9	63	1	—	1	—	11	—	1	1	4	5	179
47	,, 24	—	—	34	2	30	27	10	66	1	1	—	1	4	—	2	—	3	2	183
48	December 1	—	—	22	6	28	22	6	44	—	4	—	—	6	—	—	—	1	4	143
49	,, 8	1	—	17	5	23	30	10	59	2	1	—	—	2	—	—	—	2	2	154
50	,, 15	1	—	40	1	28	24	9	57	—	—	—	—	5	—	—	1	2	4	172
51	,, 22	1	—	41	—	24	11	10	44	—	1	1	1	3	—	1	—	—	1	139
52	,, 29	—	—	60	2	24	14	2	27	—	—	—	—	1	—	—	—	2	10	142
	Total ...	22	—	15516	472	1143	770	378	3074	50	87	10	24	276	22	29	11	97	237	22218

TABLE VI.

Cases of Infectious Disease notified during the Year 1917. *Classified according to ages.*

Disease.	AGES.																Totals.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35	45-	55-	65-	75-	85-	
Enteric Fever	...	...	...	...	...	3	1	3	6	7	...	1	1	...	...	...	22
Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	750	1574	1930	1949	2036	6450	463	136	109	81	28	9	1	...	...	...	15516
German Measles	9	27	36	32	21	166	51	40	40	32	15	3	...	...	...	...	472
Scarlet Fever	7	21	48	88	103	514	209	74	29	29	18	3	...	...	...	...	1143
Diphtheria	4	37	49	68	76	269	106	55	41	44	12	7	1	1	...	...	770
Erysipelas	8	3	3	4	3	10	23	17	26	40	70	68	54	36	12	1	378
Pulmonary Tuberculosis ...	7	9	12	12	26	391	387	222	267	708	608	282	114	28	1	...	3074
Tuberculous Meningitis ...	8	14	6	3	5	8	3	...	2	1	...	...	...	...	...	...	50
Tuberculosis of Peritoneum and Intestines	18	12	12	10	5	15	7	2	1	3	1	...	...	...	1	...	87
Tuberculosis of Spinal Column	...	...	...	...	2	2	2	...	1	1	1	1	...	...	...	...	10
Tuberculosis of Joints ...	...	...	...	...	1	7	3	5	3	...	2	2	1	...	...	...	24
Tuberculosis of Other Organs	2	3	13	14	6	98	66	18	20	17	4	7	3	5	...	...	276
Disseminated Tuberculosis ..	2	1	1	1	...	8	2	3	1	...	...	1	1	1	...	...	22
Cerebro-Spinal Fever ...	4	2	1	2	...	4	5	4	1	1	3	1	1	...	...	...	29
Poliomyelitis	1	1	3	2	...	1	1	2	...	...	...	...	...	...	...	...	11
Puerperal Fever	...	...	...	...	...	...	...	2	23	55	16	1	...	...	...	...	97
Ophthalmia Neonatorum ...	237	...	...	...	...	...	...	...	...	....	...	...	...	...	...	...	237
Total	1057	1704	2114	2185	2284	7946	1329	583	570	1019	778	386	177	71	14	1	22218

TABLE VII.

Cases of Infectious Disease notified during the Year 1917. *Classified according to Wards.*

DISEASE.	Acock's Green.	All Saints'.	Aston.	Balsall Heath.	Bordesley and Nechells.	Edgbaston	Erdington North.	Erdington South.	Handsworth.	Harborne.	King's Norton.	Ladywood.	Lozells.	Market Hall	Moseley and King's Heath.	Northfield.	Rotton Park.	St. Bartholomew's.	St. Martin's and Deritend.	St. Mary's.	St. Paul's.	Saltley.	Sandwell.	Selly Oak.	Small Heath.	Soho.	Sparkbrook.	Sparkhill.	Washwood Heath.	Yardley	Not located.	City.
Enteric Fever	2	2	3	...	...	3	...	1	1	...	...	...	...	1	2	...	...	1	1	...	1	...	...	...	...	...	1	1	1	1	...	22
Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	838	660	1084	495	1001	338	270	425	367	297	460	168	685	171	349	100	592	561	575	748	598	299	488	770	423	701	744	488	363	443	15	15516
German Measles ...	21	23	33	66	8	31	17	27	17	12	22	2	11	2	36	15	9	3	5	5	4	2	8	18	5	15	9	22	15	9	...	472
Scarlet Fever	48	37	47	38	52	35	52	25	33	34	32	27	64	14	20	21	56	22	33	40	31	48	21	31	36	26	43	18	94	12	53	1143
Diphtheria	55	40	27	22	25	32	4	22	8	6	16	33	36	13	12	6	35	22	29	20	41	42	7	23	16	21	33	20	55	8	41	770
Erysipelas	9	21	13	18	22	12	16	4	10	6	8	8	16	9	5	1	8	20	16	19	20	9	10	18	13	10	19	9	8	6	15	378
Pulmonary Tuberculosis	100	161	134	123	179	75	43	43	73	31	44	121	115	110	36	18	148	229	185	193	149	69	51	77	89	69	107	68	132	38	64	3074
Tubercular Meningitis	4	3	5	2	1	...	...	...	1	1	1	...	3	...	...	...	1	2	2	1	6	...	1	2	2	1	1	2	4	1	3	50
Tuberculosis of Peritoneum and Intestines	3	4	2	3	3	1	5	1	4	1	2	2	7	1	1	1	5	5	5	4	6	3	1	1	1	...	...	...	3	...	12	87
Tuberculosis of Spinal Column	...	...	1	...	...	2	...	...	2	...	...	...	1	...	...	...	...	...	...	...	1	...	1	1	...	...	1	...	...	...	...	10
Tuberculosis of Joints	1	...	1	1	1	...	...	1	...	...	...	...	1	...	...	1	2	1	...	2	3	...	...	1	1	1	...	...	...	1	5	24
Tuberculosis of Other Organs	6	14	22	11	22	6	11	3	4	6	1	10	9	6	4	2	19	12	9	18	10	14	4	7	4	11	5	3	9	4	10	276
Disseminated Tuberculosis	...	2	2	...	1	...	...	...	1	...	...	4	1	...	...	...	1	1	1	...	2	...	...	...	...	1	1	...	...	...	4	22
Cerebro-Spinal Fever	2	...	...	1	1	1	1	1	...	...	1	...	1	...	3	1	...	2	1	3	1	...	...	...	3	...	3	...	2	1	...	29
Poliomyelitis	1	1	...	...	2	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...	...	...	...	...	2	...	1	1	...	...	...	11
Puerperal Fever ...	4	6	3	5	8	1	...	5	2	1	2	2	3	2	2	1	10	2	2	3	1	3	2	2	7	3	5	1	5	2	2	97
Ophthalmia Neonatorum	1	6	10	11	20	2	3	6	1	4	2	20	10	4	6	...	13	17	19	14	14	5	2	5	9	3	6	1	16	2	5	237
Total	1095	980	1387	796	1346	539	422	564	524	399	591	397	964	333	476	167	900	901	883	1070	888	494	596	956	611	862	979	634	707	528	229	22218

TABLE VIII.

Temperature of the Air and Ground, Rainfall, Sunshine, and Wind, in each Month of the Year 1917.
Observed at the Birmingham and Midland Institute Observatory, Edgbaston,
by Mr. A. J. Kelley.

Month.	Temperature of the Air.						Temperature of the Ground.		Hours of Sunshine.		Rainfall in inches.		Days on which 0·01 inch or more of Rain Fell.	Miles of Wind.	
	Highest in the shade.		Lowest in the shade.		Mean for the Month.		Maximum at 1 foot deep.	Maximum at 4 feet deep.							
	1917.	Above or below the previous highest. *	1917.	Above or below the previous lowest. *	1917.	Above or below the average. *			1917.	Above or below the average. *	1917.	Above or below the average. *		1917.	Above or below the average. *
Jan.	54·6	− 3·4	23·6	+ 12·8	34·4	− 3·5	46·0	44·9	5	− 28	1·69	− 0·22	16	12859	+2650
Feb.	54·5	− 7·4	12·0	+ 4·0	34·4	− 4·3	39·9	42·0	9	− 42	0·84	− 0·83	11	6246	−3418
Mar.	54·4	− 12·2	19·1	+ 0·1	37·4	− 3·7	40·3	41·8	75	− 10	1·42	− 0·55	20	10669	+ 135
Apr.	59·9	− 19·1	25·9	− 0·8	41·9	− 3·6	44·8	42·7	101	− 18	1·62	+ 0·11	14	9744	+ 239
May	75·4	− 3·2	34·0	+ 3·0	54·7	+ 3·2	55·1	48·0	180	+ 29	3·82	+ 1·75	14	8412	− 473
June	82·6	− 0·3	44·2	+ 6·6	59·1	+ 2·0	61·2	51·5	189	+ 43	2·97	+ 0·79	12	7602	− 668
July	78·4	− 10·1	43·6	+ 4·1	61·1	+ 2·0	60·3	53·6	201	+ 59	2·05	− 0·26	12	8308	+ 37
Aug.	74·2	− 19·7	47·4	+ 6·2	59·8	+ 0·4	58·0	54·0	121	− 18	5·50	+ 2·69	24	10580	+2132
Sept.	71·7	− 18·9	43·8	+ 10·0	57·2	+ 1·6	57·0	53·9	126	+ 12	2·19	+ 0·56	19	8146	+ 196
Oct.	67·7	− 8·8	30·5	+ 2·6	45·7	− 3·0	53·4	53·2	114	+ 45	2·78	+ 0·04	7	10828	+1887
Nov.	56·0	− 5·6	29·6	+ 9·6	46·2	− 0·5	48·3	49·0	40	− 5	1·44	− 0·86	10	10807	+1457
Dec.	52·2	− 4·6	24·4	+ 10·0	35·7	− 4·1	47·2	48·0	21	− 5	1·35	− 1·42	11	10943	+ 421

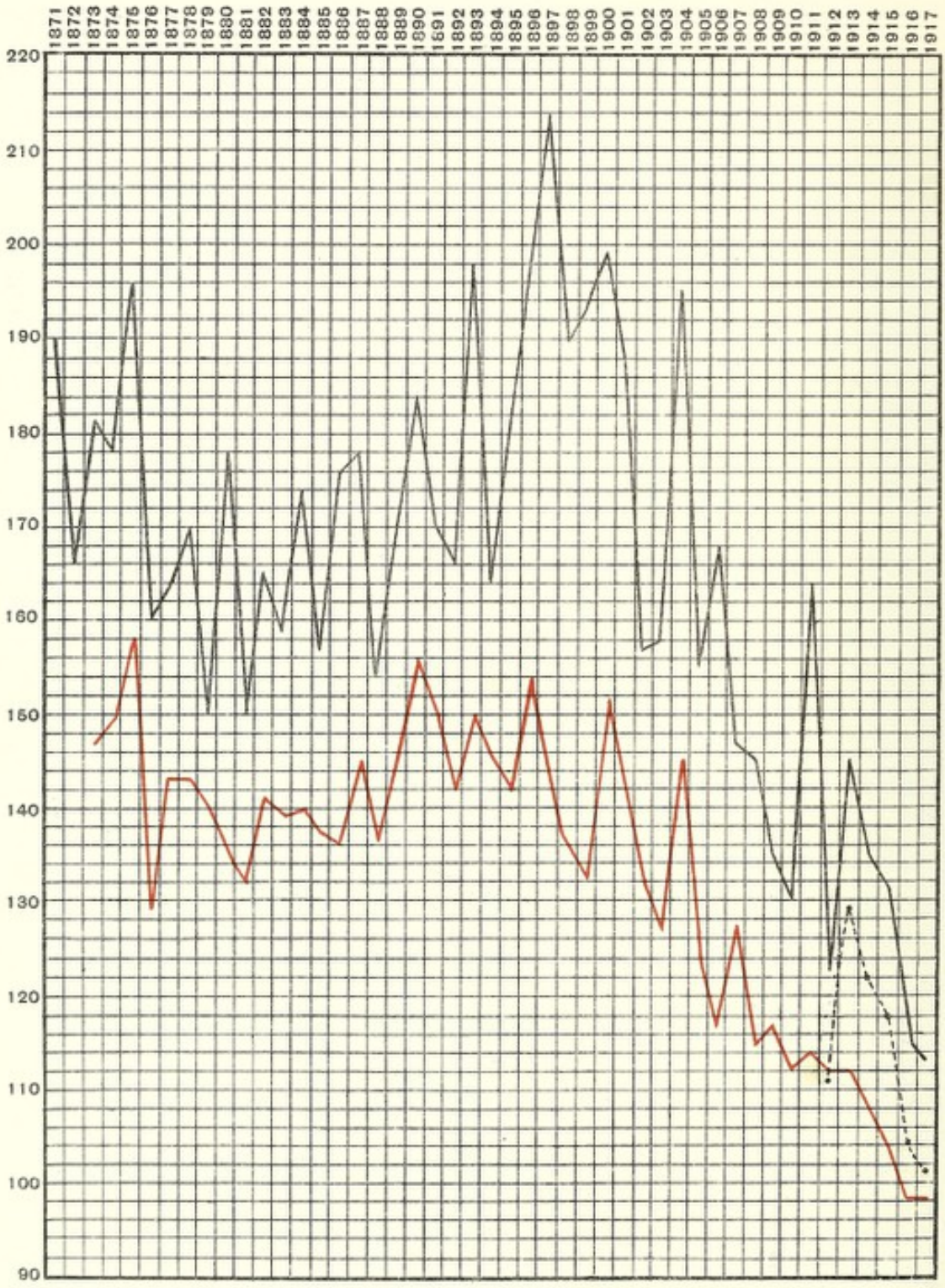
* In the thirty years 1887-1916.

TABLE IX.

Meteorology and Mortality in each week of the year 1917.

Week.		Total Deaths.	Deaths under 1 year.	Deaths 65 and up.	Deaths from						Temperature of the Air.			Temperature of Ground	Horizontal Movement of Air in Miles	Hours of Sunshine.	Rainfall in Inches.
No.	Ending. 1917.				Measles.	Whooping Cough.	Diarrhœa and Enteritis under 2.	Pulmonary Tuberculosis.	Other Forms of Tuberculosis.	Respiratory Diseases.	Highest in Shade.	Lowest in Shade.	Mean of Daily Maxima and Minima.	Highest 4 Feet Deep.			
1	Jan. 6	303	50	108	3	—	3	16	4	83	54	35	45·0	44·8	3,109	4·4	0·48
2	,, 13	250	43	80	1	—	3	26	6	59	43	29	35·6	44·9	3,287	1·1	1·21
3	,, 20	217	41	69	1	—	3	22	4	50	36	27	32·5	43·6	2,165	0·1	0·11
4	,, 27	259	45	83	4	—	4	28	3	43	34	24	29·3	43·4	3,219	—	0·03
5	Feb. 3	287	53	94	2	3	4	24	6	48	38	22	29·5	43·0	2,194	1·2	0·07
6	,, 10	337	49	119	4	3	5	33	3	83	36	12	27·4	42·0	1,462	3·3	0·10
7	,, 17	336	56	105	7	—	4	31	7	96	45	21	33·4	41·0	1,799	0·7	0·10
8	,, 24	342	50	112	9	1	5	26	6	96	46	31	39·3	41·1	1,181	0·1	0·62
9	Mar. 3	272	40	69	8	2	6	29	7	58	47	28	39·9	41·4	1,656	2·9	0·07
10	,, 10	219	34	75	10	1	6	40	3	53	42	19	30·9	41·7	3,003	7·7	0·72
11	,, 17	269	41	86	19	3	3	29	3	58	54	30	41·7	41·2	1,855	18·3	0·13
12	,, 24	274	61	72	19	3	1	22	7	52	51	25	37·8	41·8	2,694	19·8	0·40
13	,, 31	277	40	83	12	7	4	37	5	55	52	26	39·0	41·6	2,622	25·1	0·15
14	April 7	268	54	59	25	3	6	26	5	54	47	16	35·8	41·4	1,830	32·4	0·48
15	,, 14	296	36	75	29	3	5	33	6	70	48	28	37·4	41·1	2,761	31·7	0·89
16	,, 21	275	36	87	19	2	5	26	2	57	54	32	43·7	41·2	2,936	31·9	0·25
17	,, 28	246	38	66	23	2	4	29	2	61	59	38	47·7	42·7	1,780	7·1	—
18	May 5	264	48	71	24	3	4	26	5	39	72	40	55·0	43·4	1,581	43·7	—
19	,, 12	239	34	57	21	3	3	20	6	43	70	34	49·1	44·9	2,128	53·0	1·39
20	,, 19	198	24	41	9	3	1	22	5	35	71	40	53·9	46·0	1,942	22·4	1·08
21	,, 26	230	44	58	15	3	3	29	5	23	75	49	59·5	47·0	1,802	30·7	0·92
22	June 2	211	32	56	23	3	2	20	6	27	75	47	58·2	48·2	2,148	37·7	0·65
23	,, 9	182	24	49	7	1	1	23	9	17	72	46	58·3	48·8	1,891	49·4	0·79
24	,, 16	188	29	48	11	—	1	22	8	18	80	47	64·2	50·0	1,407	67·5	—
25	,, 23	196	28	46	9	3	1	26	7	24	83	45	60·2	51·5	1,564	31·6	0·96
26	,, 30	160	22	37	4	4	4	13	5	14	64	44	55·0	51·4	1,988	18·6	1·13
27	July 7	187	37	49	7	5	6	21	8	19	73	44	57·6	51·0	2,089	58·6	—
28	,, 14	174	21	51	1	1	1	16	7	15	77	47	60·5	51·8	1,809	43·1	0·12
29	,, 21	202	31	56	2	4	6	29	6	23	74	52	61·7	52·5	1,857	35·6	1·26
30	,, 28	150	26	47	1	2	10	16	4	12	78	54	65·8	53·5	1,500	46·6	0·51
31	Aug. 4	172	36	48	2	2	10	14	7	13	65	50	57·8	53·8	2,879	2·2	1·18
32	,, 11	167	29	43	1	—	7	17	4	14	74	53	62·1	53·6	1,813	32·2	1·16
33	,, 18	156	25	47	—	1	7	13	1	11	69	52	60·8	54·0	2,211	35·4	0·93
34	,, 25	155	24	54	1	1	8	14	3	11	72	49	58·7	54·0	2,480	41·1	0·60
35	Sept. 1	174	39	51	—	2	15	15	8	16	63	47	55·9	54·0	2,711	16·3	2·35
36	,, 8	153	29	51	—	3	11	17	—	17	72	46	59·6	53·6	1,853	46·1	0·05
37	,, 15	168	28	48	—	1	13	17	2	15	68	44	56·6	53·9	1,883	23·7	0·14
38	,, 22	189	21	42	—	—	7	30	6	18	67	44	56·6	53·8	2,039	12·9	1·33
39	,, 29	153	31	45	—	3	8	22	—	14	66	45	56·1	53·6	1,769	22·7	0·23
40	Oct. 6	164	22	40	—	1	4	22	6	12	68	39	52·5	53·2	2,102	42·6	0·94
41	,, 13	167	26	44	—	—	10	18	2	22	57	34	44·6	52·6	2,717	18·7	0·66
42	,, 20	179	26	47	—	2	7	16	8	19	53	34	45·4	51·0	1,814	18·9	0·14
43	,, 27	182	25	64	—	1	2	16	2	27	55	34	44·0	50·0	3,048	25·8	0·51
44	Nov. 3	200	30	55	—	3	6	23	3	29	53	31	44·9	49·9	1,900	15·5	0·40
45	,, 10	174	28	56	—	1	6	15	2	32	54	35	44·4	49·0	2,948	23·1	0·76
46	,, 17	190	26	57	—	6	3	15	6	28	51	36	43·1	48·7	1,476	5·5	0·02
47	,, 24	184	35	53	—	3	11	16	2	21	56	44	49·9	48·2	2,873	6·0	0·12
48	Dec. 1	152	30	39	—	7	6	17	1	22	55	30	46·7	48·2	3,526	11·0	0·45
49	,, 8	195	22	70	—	4	2	23	4	38	52	28	37·1	48·0	2,304	15·6	0·32
50	,, 15	217	27	44	—	7	5	31	2	38	49	30	38·0	47·0	2,113	5·6	0·20
51	,, 22	208	27	68	—	9	2	21	6	37	38	24	31·7	46·3	2,137	7·1	0·50
52	,, 29	237	38	79	2	6	2	17	1	49	45	26	35·0	45·2	2,722	1·5	0·06

INFANT MORTALITY IN BIRMINGHAM PER 1,000 BIRTHS.



ALL CAUSES (OLD CITY AREA) ———————

ALL CAUSES LESS DIARRHŒA AND ENTERITIS ———————

ALL CAUSES (ENLARGED CITY) -

PUBLIC HEALTH DEPARTMENT,

THE COUNCIL HOUSE,

BIRMINGHAM.

REPORT OF THE MEDICAL OFFICER ON MATERNITY AND CHILD WELFARE DURING 1917.

Judged by the Infant Mortality rate, the year 1917 was the best on record. The mortality was at the rate of 101 per 1,000 births.

Some doubt has been expressed as to the accuracy of our mortality records on account of the altered character and size of the population, but while this may be to a limited extent true in regard to general death-rates, it is not so in regard to this rate. The infant mortality rate deals with the deaths under one year in proportion to 1,000 babies born during the year, and not in relation to the total population.

The number of babies born has declined by 4,854, compared with the average of the five years preceding the war, and the deaths of infants have decreased by 1,036.

The chart opposite shows for 47 years the infant mortality rate in Birmingham. The continuous black line and the continuous red line represent the mortality rates for the old city area, while the dotted line represents the rates for the area of the city as it at present exists.

It has been suggested that the decline in births has been largely in the slum areas, and that any reduction in births in these areas would have a very great influence on infant mortality. This, however, is not a true explanation of the decline in infant mortality in Birmingham, as will be seen by a study of the figures in the table below.

		Infant Mortality Rate, 1917.	Infant Mortality Rate, 1912—1916.	Increase or Decrease per cent.
Central Wards: Approximate population, 227,840. Average infant mortality rate, 123.	St. Paul's	115	156	–26
	St. Mary's	168	194	–13
	Duddeston and Nechells	136	171	–20
	St. Bartholomew's	132	166	–20
	St. Martin's and Deritend	112	154	–27
	Market Hall	89	145	–39
	Ladywood	112	140	–20
Middle Wards: Approximate population, 368,034. Average infant mortality rate, 97.	Lozells	93	101	– 8
	Aston	105	124	–15
	Washwood Heath	96	102	– 6
	Saltley	97	95	+ 2
	Small Heath	94	89	+ 6
	Sparkbrook	110	90	+22
	Balsall Heath	83	83	=
	Edgbaston	73	90	–19
	Rotton Park	93	121	–23
	All Saints'	122	112	+ 9
Outer Wards: Approximate population, 290,429. Average infant mortality rate, 67.	Soho	74	91	–19
	Sandwell	37	80	–54
	Handsworth	71	85	–16
	Erdington North	74	80	– 7
	Erdington South	80	72	+11
	Yardley	95	79	+20
	Acock's Green	75	86	–13
	Sparkhill	90	61	+48
	Moseley and King's Heath	41	66	–38
	Selly Oak	66	77	–14
	King's Norton	77	77	=
	Northfield	50	80	–38
	Harborne	44	69	–36
	City	**101**	**117**	**–14**

In 1917—the year of lowest mortality—the rate varied from 37 per 1,000 in Sandwell to 168 in St. Mary's. That is to say, the rate in the worst area was 350 per cent. higher than in the best area.

If the mean mortality for the central and middle wards had been the same as it was in the outer ring of wards in 1917, there would have been 605 fewer babies die, *viz.*, 1,186 instead of 1,791.

The average rate in the outer wards was 67 per 1,000 in 1917, and 77 in the preceding five years.

The figure, therefore, of 80 per 1,000 might quite properly be taken as a standard to aim at for the city in every district.

The Registrar-General in his 1916 annual report comments on the fact that the infant mortality in London was less than that for the whole of England and Wales in every one of the years 1911 to 1916, except in one instance. He says this is "of most hopeful import, since it proves there is nothing in urbanisation, *per se*, to prevent a further large reduction of the rate."

He further states that "great as has been the progress of the past 16 years, much remains to be done merely in levelling up conditions in the rest of the community to those now prevalent in London and the South of England generally, and the figures convey no suggestion that that standard is approaching finality."

The infant mortality rates in the six largest provincial towns and in England and Wales were for 1917 as follows :—

Glasgow	128
Birmingham	101
Liverpool	114
Manchester	108
Leeds	131
Sheffield	104
England and Wales	97

The following table gives the mortality rate at each month of age during 1917. In order to have a comparable set of figures, the rates for England and Wales for 1912 to 1916 and for County Boroughs and Rural Districts are set out :—

INFANT MORTALITY.

Proportion of Deaths to 1,000 *Births.*

	Under 1 mth.	Months. 1.—	2.—	3.—	4.—	5.—	6.—	7.—	8.—	9.—	10.—	11.—	Total under 1 year.
Birmingham, 1917 ...	38·3	10·4	7·3	6·4	6·2	5·0	4·6	4·6	4·3	5·5	4·3	4·3	101
Birmingham, 1912-16 ...	39·6	22·0		21·3			18·3			15·6			117
England and Wales, 1912-16	38·2	10·7	7·9	6·7	5·7	5·2	4·9	4·8	4·7	4·5	4·2	4·2	102
County Boroughs, 1912-16	40·8	12·3	9·1	7·9	6·7	6·2	5·9	5·8	5·7	5·4	5·2	5·1	116
Rural Districts, 1912-16	37·1	8·6	6·1	4·9	4·3	3·7	3·6	3·4	3·3	3·2	2·9	2·9	84

In a special report (here reproduced) the very high mortality at birth, together with the great loss of life due to ante-natal death, was commented on, and certain recommendations made.

"PUBLIC HEALTH DEPARTMENT, THE COUNCIL HOUSE, BIRMINGHAM,

"*January 1st*, 1918.

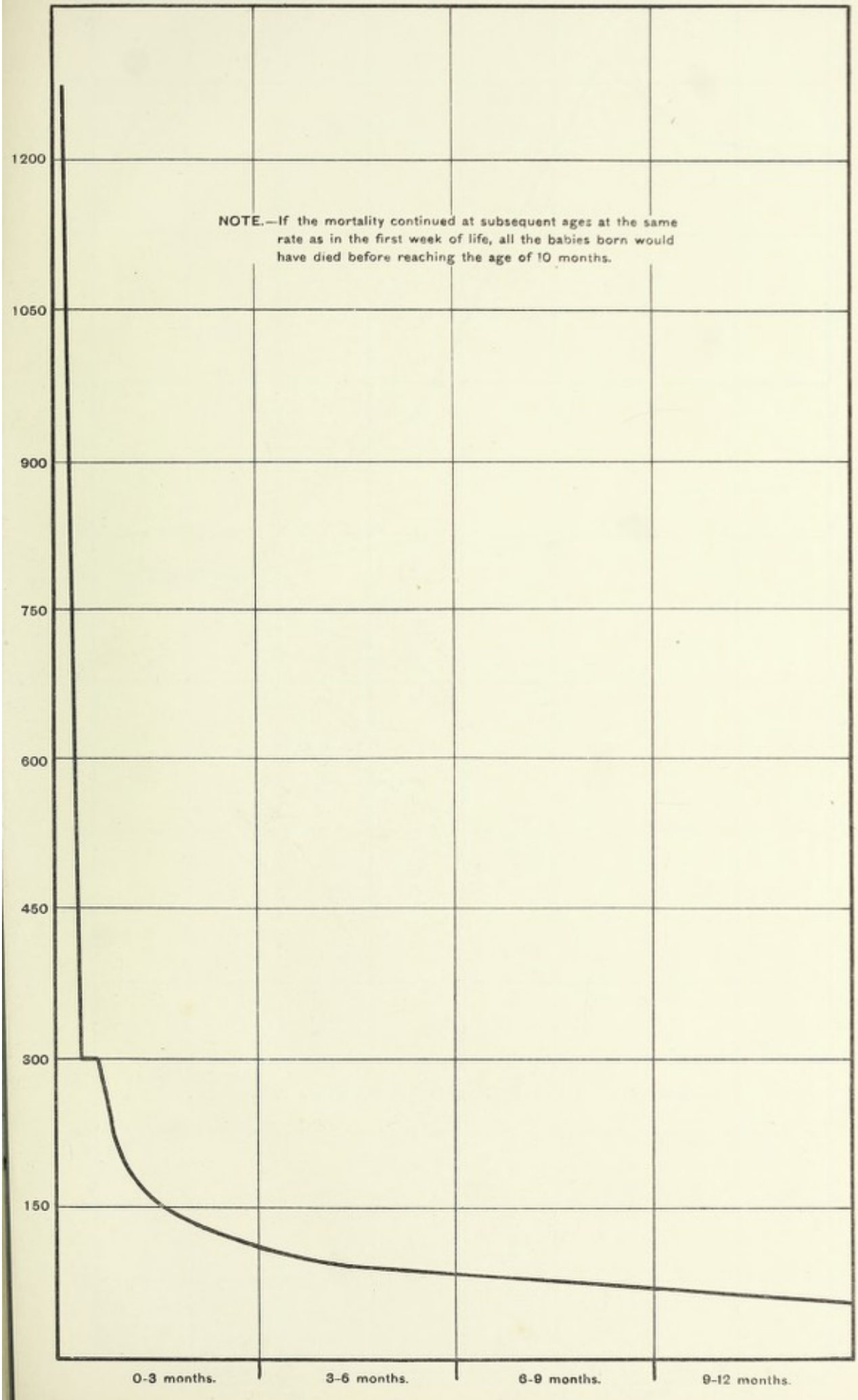
"*To the Chairman and Members of the Maternity and Infants' Welfare Sub-Committee.*

"PRE-NATAL AND EARLY INFANT MORTALITY.

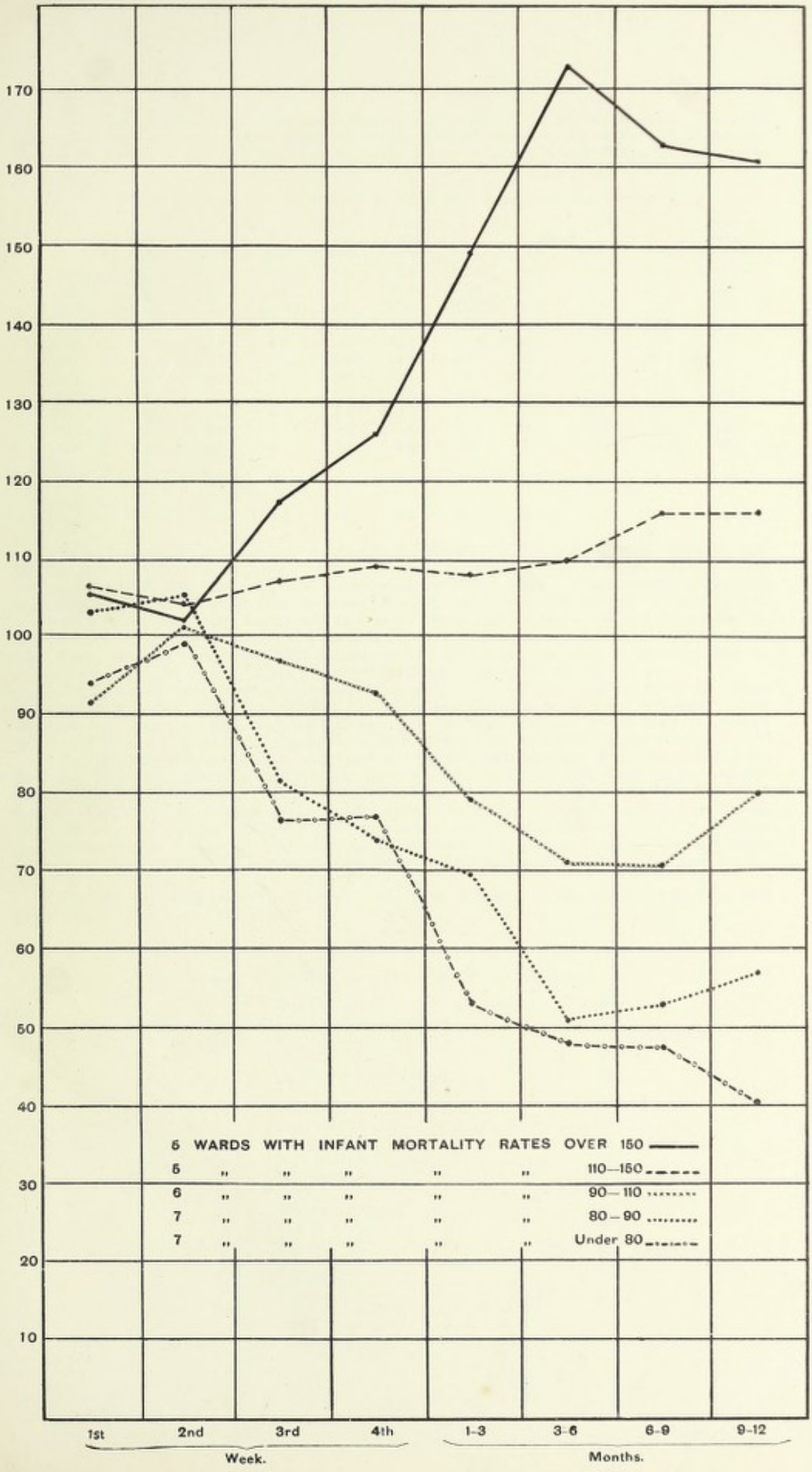
"I have to call the attention of your Committee to the accompanying charts, the first of which shows that the mortality during the first two weeks of life is very much higher than at any subsequent period, while the second shows that the mortality in the healthier districts of Birmingham during the first two weeks of life is not much better than in the poorest class areas.

ANNUAL DEATH-RATE PER 1,000 LIVING IN EACH WEEK OF THE FIRST YEAR OF LIFE.

1912—1916.



RELATIVE INFANT MORTALITY AT DIFFERENT AGE-PERIODS IN GOOD AND BAD WARDS COMPARED WITH THE WHOLE CITY TAKEN AS 100. 1912-1916.



"The tabular statement appended shows that the improvement in infant mortality, which has taken place in recent years, has occurred chiefly among infants between one month and six months old, and that there is very little improvement in the mortality among infants during the early weeks of life.

"Proportion of Infant Deaths at Different Ages to Total Births.

	1st week.	2nd week.	3rd week.	4th week.	Total under 1 month.	Months. 1—3.	3—6.	6—9.	9—12.	Total under 1 year.
1906 ...	21·8	7·3	6·8	5·9	41·8	33·3	34·2	27·0	20·5	157
1907 ...	22·9	6·5	6·5	4·7	40·6	28·7	27·1	19·7	16·7	133
1908 ...	25·3	5·8	5·8	4·1	41·0	27·6	26·8	19·9	14·9	130
1909 ...	25·2	5·8	6·7	4·0	41·7	23·7	22·2	17·7	15·6	121
1910 ...	24·9	5·4	5·0	3·3	38·6	23·8	22·2	16·7	14·0	115
1911 ..	26·1	6·3	7·1	4·8	44·3	30·8	29·0	25·7	20·8	151
1912 ...	25·3	6·5	6·5	3·8	42·1	19·7	18·4	16·7	14·5	111
1913 ...	23·7	6·2	5·7	5·4	41·0	25·1	25·5	20·9	16·4	129
1914 ...	26·1	5·5	6·3	4·4	42·3	23·1	22·2	18·1	16·6	122
1915 ...	22·9	4·8	5·4	3·9	37·0	22·2	21·8	19·9	16·7	118
1916 ...	22·7	5·1	4·7	3·3	35·8	19·7	18·7	15·8	13·9	104
Average 1907-11 ...	24·9	5·9	6·2	4·2	41·2	26·9	25·5	19·9	16·4	130
Average 1912-16 ...	24·1	5·6	5·7	4·2	39·6	22·0	21·3	18·3	15·6	117

"These figures show a marked and continuous improvement in the general infant mortality rate for the city has been taking place. When, however, we come to deal with the children under four weeks old we find that very little improvement has taken place. Unfortunately, it has been impossible to go back for more than ten years with our local figures, but in these ten years a four per cent. reduction took place in the first four weeks of life, while between one and six months the reduction was 17 per cent. To give some idea of the actual numbers involved, it may be stated that during the past five years 3,311 infants under two weeks old died in the city, that is, approximately 660 per annum, equal to one-fourth of the total infant deaths.

"We have no accurate information as to the number of infants who died before birth. There were during 1916 729 stillbirths recorded, and it is estimated that about 3,000 non-viable infants are born each year and dealt with as abortions, etc., so that there are about 4,500 pregnancies terminated by death of the fœtus before being born or its death within two weeks of birth.

"Very little has been done to deal with this very serious waste of life. I feel strongly that the first step in devising means of meeting this great loss will be to get information as to where it occurs, and I, therefore, feel strongly that all abortions and miscarriages should be reported compulsorily, and that the information might quite properly be treated as strictly confidential. It would be most valuable to know where these occur, and the classes among which they occur. Accurate knowledge of these facts would direct public attention to the great loss of life, and would concentrate effort on finding out what the real cause is, and then means might be taken to remedy it.

"The following table shows that there is very little difference in the relative number of still births recorded in good and bad wards.

Stillbirths.

Number of Stillbirths per 1,000 *Total Births* (1912-1916).

Least healthy Wards: Approximate population, 185,000	St. Mary's	32	Average, 33.
	Duddeston and Nechells	32	
	St. Bartholomew's	31	
	St. Paul's	36	
	St. Martin's and Deritend	35	
Next in order: Approximate population, 175,000	Market Hall	31	Average, 32.
	Ladywood	29	
	Aston	29	
	Rotton Park	33	
	All Saints'	36	
Third in order: Approximate population, 197,000	Washwood Heath	32	Average, 31.
	Lozells	26	
	Saltley	32	
	Soho	36	
	Sparkbrook	31	
	Edgbaston	31	

Fourth in order: Approximate population, 170,000	Small Heath	28	Average, 32.
	Acock's Green	38	
	Handsworth	29	
	Balsall Heath	25	
	Sandwell	33	
	Erdington North	34	
	Northfield	36	
Healthiest Suburban Wards: Approximate population, 150,000	Yardley	44	Average, 35.
	Selly Oak	25	
	King's Norton	36	
	Erdington South	36	
	Harborne	40	
	Moseley and King's Heath	38	
	Sparkhill	27	

JOHN ROBERTSON, M.D., B.Sc.,
Medical Officer of Health."

In the report for 1916 the deaths of infants were grouped into seven sections. If the same plan be adopted for 1917, the figures for total deaths, not death rates, are as follows:—

		1917.	1916.
Group 1.	Congenital defects, prematurity, debility, etc.	728	768
Group 2.	Diarrhœa, Enteritis, and Gastritis	258	342
Group 3.	Bronchitis and Pneumonia	312	423
Group 4.	Convulsions and Meningitis	131	163
Group 5.	Measles, etc.	134	230
Group 6.	Suffocation	38	27
Group 7.	All other causes	190	189

In greater detail the figures are given in the following table:—

INFANTILE MORTALITY DURING THE YEAR 1917.

Deaths from stated Causes in Weeks and Months under One Year of Age.

Cause of Death.	Weeks.				Total under 1 m'nth	Months.				Total Deaths under 1 year.
	0.	1.	2.	3.		1.	3.	6.	9.	
Measles	—	—	—	1	1	—	3	25	37	66
Scarlet Fever	—	—	—	—	—	—	—	—	2	2
Whooping Cough	—	—	1	1	2	6	8	7	18	41
Diphtheria and Croup	—	—	—	—	—	—	—	2	—	2
Tuberculous Meningitis	—	—	—	—	—	2	4	3	6	15
Abdominal Tuberculosis	—	—	—	—	—	3	4	3	5	15
Other Tuberculous Diseases	—	—	—	—	—	2	2	4	4	12
Rickets	—	—	—	—	—	1	5	7	2	15
Syphilis	—	—	1	1	2	9	8	4	—	23
Cerebro-Spinal Fever	—	—	—	—	—	1	—	1	1	3
Meningitis (not Tuberculous)	1	—	—	—	1	3	6	7	7	24
Convulsions	6	5	5	12	28	24	26	17	12	107
Bronchitis	3	4	3	2	12	35	34	25	9	115
Pneumonia (all Forms)	—	—	5	3	8	21	45	52	71	197
Gastritis	—	3	—	1	4	13	10	6	5	38
Diarrhœa, Enteritis, etc.	—	5	5	9	19	54	75	35	37	220
Congenital Malformations	28	7	6	3	44	17	6	6	4	77
Premature Birth	270	45	27	14	356	30	1	2	—	389
Atrophy, Debility and Marasmus	58	28	18	11	115	61	46	12	14	248
Atelectasis	13	—	—	—	13	1	—	—	—	14
Injury at Birth	8	2	—	—	10	—	—	—	—	10
Neglect (under 3 months)	1	—	—	—	1	—	—	—	—	1
Suffocation (Overlying)	—	1	2	6	9	13	14	2	—	38
Other causes	36	9	5	3	53	17	14	19	16	119
All causes	424	109	78	67	678	313	311	239	250	1791

Stated in other words, the greatest cause of infant mortality was prematurity, congenital defects, and marasmus. These conditions caused 40 per cent. of the total mortality under one year. Next comes bronchitis and pneumonia in 1917, with 312 deaths, representing 17 per cent. of the total, then diarrhœa, with 14 per cent., measles, etc., 7 per cent., and convulsions, etc., 7 per cent.

A great deal of attention has been directed to group 6 by the Chairman of the Liquor Control Board, as it has been suggested that these deaths are to a large extent due to insobriety on the part of parents causing them to overlay their infants.

The cases in Birmingham since 1912 were as follows :—

1912.	1913.	1914.	1915.	1916.	1917.
89	91	87	79	27	33

The figures given by Lord D'Abernon are as follows :—

England and Wales.		Annual Convictions for Drunkenness (Women only).		Deaths from Suffocation (under 1 year).
1913	...	35,765	...	1,226
1914	...	37,311	...	1,233
1915	...	33,211	...	1,021
1916	...	21,245	...	744
1917	...	12,307	...	704

Average Weekly Convictions for Drunkenness (Men and Women).

			Greater London.	Birmingham.	Liverpool.	Manchester.	Glasgow.
1913	...	...	1,259	91	286	148	514
1914	...	...	1,301	72	236	135	462
1915	...	...	994	44	176	83	496
1916	...	...	566	25	112	50	319
1917	...	...	321	16	72	25	189

The 38 deaths registered in Birmingham in 1917 occurred on the following days :—

Sunday ...	...	...	...	...	8
Monday ...	...	...	...	...	6
Tuesday ...	...	...	...	...	6
Wednesday	...	...	...	...	5
Thursday	...	...	...	...	6
Friday ...	...	...	...	...	3
Saturday	...	...	...	...	4

The houses in which these deaths occur are visited by the staff of Health Visitors, and generally it is found that the very natural indiscretion of taking a young infant into bed with the mother is the cause. Few, if any, cases are being found in which there appears to be any evidence whatever of drink as a cause at the present time.

Mortality—1-5 Years of Age.

It is impossible to consider child welfare without considering the mortality at ages from 1 to 5. Much of this mortality is due to influences handed on from the age period 0—1.

Total Deaths—Aged 1-5 Years.

1912.	1913.	1914.	1915.	1916.	1917.
1,649	1,545	1,519	1,362	1,275	1,121

During 1917 the chief causes of death were as follows :—

I.	Measles	246
II.	Whooping Cough	84
III.	Diphtheria	62
IV.	Scarlet Fever	6
V.	Tuberculosis (all Forms)	107
VI.	Bronchitis and Pneumonia	294
VII.	Diarrhœa and Enteritis	63
VIII.	Burns	42
IX.	All other causes	217
		1,121

Of the 1,791 infants under one year who died in 1917 seventeen per cent. died in public institutions, as compared with 34 per cent. for the whole population. Of those aged one to five, 28 per cent. died in public institutions.

Ante-Natal Deaths.

There were 580 stillborn infants reported by doctors, midwives, or parents, as compared with 729 in 1916. Of the 215 stillbirths reported by midwives 113 were at full term, *i.e.*, 53 per cent.

No record is available of miscarriages or abortions, but judging from the family histories of a large number of Birmingham women, about $3\frac{1}{2}$ occur for every stillbirth. If this ratio maintained in 1917, then approximately there were 2,000 abortions and miscarriages.

Total Mortality to Five Years of Age.

Abortions and miscarriages		2,000
Stillbirths		580
Deaths under one year		1,791
Deaths from one to five years		1,121
Total		5,492

The Work of Lessening Infant and Child Mortality and of Improving the Health of Surviving Children.

A considerable amount of work has been going on in Birmingham, especially during the last ten years, with these objects. The Government Departments are now sympathetic and willing to assist, and, indeed, are overlapping each other in urging local authorities to still further effort.

It may be said of Birmingham that there is no need to urge—the only difficulty is that of being certain of the effectiveness of any proposal made. If there is reason to believe that any measure will be of value, there is no difficulty in obtaining sanction for its adoption. Perhaps there is one exception to this general statement, and that is in regard to social betterment of the people, especially that which will arise from better housing conditions. These conditions, however, are slower and more difficult to obtain, and while it is true that Birmingham has conceived what will eventually develop into a splendid scheme, the war has delayed this so much that it blocks progress in the general scheme of improvement in the conditions of child life.

Of the first importance is the midwifery service. Of the 17,706 babies born in 1917 5,833 were attended by doctors, with the assistance of nurses or handy women, and 11,873 were attended by midwives primarily.

There were 216 midwives who gave notice of their intention to practise in 1917. Of these 84 held qualifications, and 132 were put on the Roll because they had been in bona fide practice before the date specified in the Midwives Act.

During 1917 thirty-two midwives gave up practice for the following reasons:—

6 on completion of holiday duty.
4 left the district.
1 was struck off the Roll for misconduct.
9 gave up on account of old age or illness.
6 left for other work.
4 gave up on advice.
2 died.

The trained midwives attended 4,447 births, equal to 53 births per trained midwife, while the bona fide midwives attended 7,426 births, equal to 56 births per midwife.

The number of births per midwife was as follows :—

1 midwife attended 361 births.
3 midwives attended 250—300 births.
5 midwives attended 200—250 births.
17 midwives attended 150—200 births.
19 midwives attended 100—150 births.
49 midwives attended 50—100 births.
122 midwives attended less than 50 births.

The midwives have been able to demand and obtain better fees during 1917 than formerly. The usual fee has been :—

For insured husband and wife	£1 1s 0d.
For insured husband only	15s. 6d. to 17s. 6d.
For primiparæ	From 25s.

The midwives sent for medical assistance in 1,127 cases, equal to once in every 11 births attended. In 799 cases assistance was needed on account of the mother, and in 328 cases on account of the child.

On behalf of the mother, 575 attendances by a doctor were needed at the labour, in 182 cases on account of ruptured perineum, and in 42 cases on account of high temperature.

On behalf of the child a doctor was sent for on account of premature birth or debility in 135 cases, for inflammation of the eye in 161 cases, and on account of the death of the child in 32 cases.

During 1917 the Public Health Committee sent the following letter to doctors in the city :—

MEDICAL HELP FOR MIDWIVES.

The Public Health Committee are desirous of making some more certain and effective provision for obtaining medical assistance for poor women in childbirth, whenever this is found to be advisable, in cases attended by midwives.

For this purpose they are prepared to take over the responsibility for the payment of fees, which have up to the present been dealt with by the Birmingham Board of Guardians, and to retain the same scale of charges.

It is proposed to supply medical practitioners who are willing to undertake this work with postcards, on which a claim for the fee can be made immediately after the attendance ceases. The Public Health Committee will pay the fee, and recover from the patient's husband in cases where this is desirable. It is, of course, obvious that this offer relates only to patients who are unable to pay the fee for medical help, and that in practically all cases the practitioner should make an application for payment to the responsible person in the house.

A list of medical practitioners willing to undertake this work will be supplied to midwives, with an instruction that in every instance when the patient has a private medical attendant he should be sent for, and in all other cases the doctor living nearest the patient's house and whose address is on the list should be called.

I shall be obliged if you will please let me know on the enclosed postcard whether you desire me to add your name to the list which it is proposed to send to each midwife.

A copy of this letter is being sent to every general practitioner in the City of Birmingham, irrespective of whether he is serving with H.M. Forces or not.

For scale of fees see opposite page.

I am, yours very faithfully,

JOHN ROBERTSON,
Medical Officer of Health.

Scale of Fees.

1.	In the case of a pregnant woman before labour commences	First visit 5s., subsequent visits 2s. 6d.; if first visit is between 9 p.m. and 9 a.m., 10s. 6d.
2.	In all cases of difficult labour necessitating operative interference	£2 2s. 0d., to include five subsequent visits.
3.	In other cases of labour requiring medical assistance ...	£1 1s. 0d., to include five subsequent visits.
4.	In the case of lying-in women	First visit 5s., subsequent visits 2s. 6d.; or if the first visit is between 9 p.m. and 9 a.m., fee 10s. 6d.
5.	In the case of puerperal fever	First visit 10s. 6d.; subsequent visits 2s. 6d.
6.	Deaths before arrival of doctor	10s. 6d. for visit.

Shortly afterwards a letter was sent to Midwives as follows:—

Madam,

I herewith enclose two copies of a list of medical practitioners who have consented to attend on the call of a midwife. In cases in which the patient cannot pay the doctor's fee the Public Health Committee has undertaken to do so, and, if necessary, recover the charge from the patient. It will be desirable for you to carry this list with you when you are called to a confinement.

The midwife should first send for the patient's private medical attendant if his name is on the list; failing him then to the doctor on the list who lives nearest to the patient's house. In cases of great difficulty in getting medical assistance a doctor from the Maternity Hospital, Loveday Street, may be obtained by telephoning to the Hospital (telephone number, Central 6073).

This new arrangement cancels previous instructions as to sending for medical help.

Yours faithfully,

JOHN ROBERTSON,

Medical Officer of Health.

Puerperal Fever.

There were 97 cases of Puerperal Fever notified, and 26 deaths, as compared with :—

	1912.	1913.	1914.	1915.	1916.	1917.
Cases	78	112	149	161	170	97
Deaths	27	44	33	35	31	26

Of the 97 cases 29 were in the practice of certified midwives, and 68 in the practice of medical men or institutions. No less than 40 cases occurred after miscarriages or stillbirths.

Of the 97 notified cases 76 were removed to the Women's Hospital, three to the Union Infirmary, one to the General Hospital, and one to the Maternity Hospital, leaving only 16 who were nursed at home.

Maternal Mortality in 1917.

Cause of Death.	1912.	1913.	1914.	1915.	1916.	1917.
Puerperal Fever	27	44	33	35	31	26
Accidents of child-birth	45	48	41	38	40	20
Maternal deaths per 1,000 births ...	3·2	3·9	3·2	3·4	3·4	2·6

Pre-Natal Medical Advice.

Midwives and nurses are encouraged to advise that pregnant women should see their family doctor during their pregnancy in order that accidents or disease may be prevented. For those who cannot or will not do this on account of the fee entailed, there are now twenty maternity centres where a lady doctor gives advice free.

It is occasionally claimed that this work should be performed by midwives, but this is a gross misconception of what is meant by pre-natal advice. The training and experience of a midwife in no way fit her for such work. On the other hand, a midwife can help a great deal by seeing her patient and advising as to what is necessary for the labour, and as to minor matters in regard to the welfare of the mother.

Ophthalmia Neonatorum.

During 1917 there were 237 cases reported by doctors and midwives.

This is equal to one case in every 75 births, as compared with one case in every 62 births for 1916.

Died within the year.	Left the District or City.	* Damaged Eye or Eyes.	Condition of Eyes Normal on Final Visit.
17	10	9	201

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* Infants whose (eye or) eyes are damaged :—

	Position in Family.	Treatment began day of disease.	Doctor or Midwife.	Treated by.	Condition of Eyes at end of treatment.
1.	5th	2nd	Midwife	Eye Hospital	Right eye, normal. Left eye, sight defective.
2.	5th	1st	Doctor	Doctor and Eye Hospital.	Right eye, normal. Left eye, very defective.
3.	3rd	1st	Doctor	Doctor and Eye and Queen's Hospital.	Right eye, normal. Left eye, sight slightly defective.
4.	2nd	1st	Midwife	Doctor and Eye Hospital.	Right eye, sight lost. Left eye, very defective.
5.	3rd	2nd	Midwife	Doctor and Eye Hospital.	Right eye, completely destroyed. Left eye, very defective.
6.	1st	1st	Doctor and Midwife.	Doctor (and Specialist)	Both eyes, very defective.
7.	6th	1st	Midwife.	Eye Hospital.	Right eye, normal. Left eye, slightly defective.
8.	8th	13th	Doctor and Midwife. (Not born in Birmingham)	Doctor and Eye Hospital.	Right eye, completely damaged. Left eye, normal.
9.	3rd	1st	Doctor and Midwife.	Doctor and Eye Hospital (In-patient).	Right eye, slightly defective. Left eye, very defective.

Infant Welfare Centres.

In the report for 1916 and in previous years a general description of the work at these Centres was given.

There were in 1916 eight Municipal Centres and seven Voluntary Centres in Birmingham. During 1917 and 1918 improvements and additions were made, so that there are now twelve Municipal and eight Voluntary Centres. But for the extreme difficulty in obtaining suitable accommodation, three additional Centres would have been added.

At each of these Centres the work is increasing in efficiency and in popularity. This has necessitated a considerable increase of staff to cope with the work. There are now

4 whole-time Lady Doctors.
8 part-time Doctors.
78 Infant Welfare Visitors, Health Visitors, and others.
24 Clerks and Caretakers.

Hospital accommodation is provided :—

(1) For all Puerperal Fever patients ... 14 beds at the Women's Hospital.
(2) For difficult labour ... ... 20 beds at the Maternity Hospital.

The total cost of the special work directed to the prevention of Maternal and Infant Mortality was during the financial year ending March 31st, 1918, £19,073 1s. 3d., towards which amount Government grants were received of £9,536 10s. 7d. The nett cost to Birmingham was, therefore, £9,536 10s. 8d.

The following table shows in detail the work done at the Municipal Centres during the year :—

City of Birmingham Infant Welfare Visitors' Yearly Return.
Year ending December 29th, 1917.

	Bloomsbury Street.	Darwin Street	Farm Street	Hope Street	Lichfield Road	New John St. West and Smith St.	St. Vincent Street	Washwood Heath	TOTAL
Deaths registered under 1 year	146	128	158	107	126	101	88	85	939
Births reported (including Still-births)	982	1,178	1,361	1,030	1,325	1,030	1,125	942	8,973
No. excluded from Visiting	7	19	7	1	1	7	21	7	70
Primary visits paid to Infants	1,016	1,178	1,424	1,033	1,335	1,107	1,141	909	9,143
Attended by Doctor	158	318	452	263	332	189	432	393	2,537
Midwife	806	816	917	732	950	854	649	492	6,216
In Institution	52	44	55	38	53	64	60	24	390
No. of Illegitimate Births	30	23	25	26	41	37	32	23	237
No. of Premature Births	54	38	34	38	40	26	35	44	309
Feeding at First Visit—Breast only	889	1,008	1,074	886	1,150	942	987	682	7,618
Artificial partially ...	24	27	76	28	43	31	33	67	329
Artificial entirely ...	40	83	195	58	76	60	53	106	671
Still-born or Dead ...	63	60	79	61	66	74	68	54	525
Condition at First Visit—Good	848	960	1,122	833	1,076	863	931	694	7,327
Fair	92	130	195	133	170	160	119	113	1,112
Bad	17	17	27	6	20	7	29	49	172
Dead	29	30	49	23	34	34	26	21	246
Still-born	30	41	31	38	35	43	36	32	286
Health of Mother—Good	850	910	1,109	803	1,005	871	945	680	7,173
Fair	138	220	272	219	266	221	133	159	1,628
Bad	25	41	40	11	59	14	62	65	317
Dead	3	7	3	—	5	1	1	5	25
No. at Work during Pregnancy	393	229	413	429	375	445	457	151	2,892
No. of Infants Still-born	7	11	12	26	12	16	17	12	113
No. of Infants Premature	18	18	18	16	20	23	21	10	144
Periodical revisits to Infants and Children ..	6,908	6,006	1,050	8,608	4,426	6,824	8,203	3,347	45,372
Special revisits	993	497	1,271	735	288	2,003	1,152	286	7,225
Visits at 1 year old	691	1,269	65	497	626	570	780	49	4,547
No. Breast-fed for First Six months	521	878	47	364	449	405	548	29	3,241
Given up on account of Mother's Health ...	101	244	16	52	148	106	168	17	852
Given up on account of Child's Health ...	9	85	—	43	7	18	11	—	173
Given up on account of Mother going to work	60	62	2	38	22	41	53	3	281
Health of Child—Good	596	1,028	53	366	465	439	560	34	3,541
Fair	79	200	8	122	134	121	182	11	857
Bad	16	41	4	9	27	10	38	4	149
Mother resumed Work since Confinement ...	209	291	7	74	78	105	166	6	936
Primary visits to expectant Mothers	83	95	38	248	57	192	145	61	919
Revisits to expectant Mothers	144	73	41	163	48	66	92	92	719
Total visits and revisits	9,835	9,118	3,889	11,284	6,780	10,762	11,513	4,744	67,925
Total babies at Consultations—Under 1 year ...	3,226	1,633	2,499	3,193	5,082	2,933	3,612	2,235	24,413
Over 1 year ...	1,182	438	236	837	2,453	1,578	1,599	692	9,015
No. seen by Doctor	2,901	1,161	1,940	2,090	3,558	2,378	2,912	2,321	19,261
Fresh babies at Consultations—Under 1 year ...	507	380	532	600	899	544	707	384	4,553
Over 1 year ...	329	109	114	208	424	370	470	192	2,216
Total expectant Mothers at Consultations ...	120	—	71	206	165	135	350	89	1,136
Fresh expectant Mothers at Consultations ...	67	—	11	134	96	42	154	34	538
Attendances at Sewing Classes	42	—	—	333	232	69	359	284	1,319
Attendances at Cookery Classes	91	—	—	6	33	19	20	73	242

The following statistics give an approximate idea of the nature and extent of the work done at the Voluntary Centres. In several cases the figures are for a portion of the year only :—

	Floodgate St. (Infant Health Society)	Selly Park.	Stirchley and Cotteridge.	Stamford Street (Settlement).	Latimer Street.	Sparkhill and Greet.	Handsworth.	Harborne.	Northfield.	TOTAL.
Primary visits to Children by Paid Workers	508	262	182	267	332	334	363	161	110	2,519
Primary visits to Children by Voluntary Workers ...	0	0	132	0	0	0	20	0	0	152
Revisits to Children by Paid Workers	8,162	280	1,257	10,587	3,710	746	948	933	690	27,313
Revisits to Children by Voluntary Workers ...	970	257	332	3,898	287	1,293	172	0	0	7,209
Total Visits and Revisits to Children	9,640	799	1,903	14,752	4,329	2,373	1,503	1,094	800	37,193
Primary Ante-Natal Visits ...	87	24	21	168	42	38	111	8	10	509
Ante-Natal Revisits ...	435	101	80	1,625	79	?	0	7	40	2,367?
Total Ante-Natal Visits ...	522	125	101	1,793	121	?	111	15	50	2,838?
Fresh Children who attended the Centre	448	158	238	158	476	221	609	47	?	2,355?
Total Attendances	2,922	1,128	1,336	2,406	1,884	2,093	3,341	187	623	15,920
Fresh Mothers who attended (Ante and Post Natal) ...	106	12	3	*	21	31	20	2	?	195?
Total Attendances	106	20	29	*	47	62	77	13	56	410?
No. of Children's Consultations held	75	46	89	63	48	65	92	22	34	534
No. of Mothers' Consultations held	27	2	45	*	8	10	30	22	34	178?
Total Attendances at—										
Sewing Classes ...	2,688	88	154	718	270	545	474	?	84	5,021?
Cookery Classes ...	816	0	0	183	0	?	41	0	0	1,040?
Health Lectures, etc. ...	0	454	1,585	319	0	1,340	415	?	84	4,197?

* Seen at Maternity Hospital.

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