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City of Birmingham.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1929

BIRMINGHAM:
TEMPLAR PRINTING WORKS, EDMUND STREET.
1930

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Public Health Department,
The Council House,
Birmingham.

TO THE CHAIRMAN AND MEMBERS OF THE PUBLIC HEALTH COMMITTEE.

Mr. Chairman, Ladies and Gentlemen,

The records of the health of the City set out in the following pages are to a considerable extent coloured by one particular event—the grave epidemic of influenza which swept over the City, as over the country as a whole, during the spring at a time when a spell of bitterly cold weather was also imposing a severe strain on the health of the community. The results are to be seen in the rise in the death-rate, with the significant rises in particular constituents of that rate; and also, though to a smaller extent, in the rise in the infant mortality. Birmingham was by no means in an exceptional position in this; the country as a whole suffered equally.

Apart from this grave factor, there remains to be noted an increased prevalence of scarlet fever which, with a similar increase in diphtheria for a part of the year, caused considerable pressure of work at Little Bromwich Hospital.

The year saw considerable progress in the application of the revised bye-laws for Houses let in Lodgings. The experience which has been gained of these revised bye-laws shows that, while they by no means finally solve the very difficult problem presented by this class of house, the bye-laws do in part substantially strengthen the hand of the local authority in dealing with the more grossly unhealthy conditions to be found in them. The final solution can come only with a determination on the part of those responsible for the letting of these premises that they will not exploit their less fortunate fellows.

The City Council determined during the year to adopt bye-laws regulating the emission of waste smoke. An objection raised by the brickmaking trade was the subject of an official enquiry by the Ministry of Health, with the result that certain types of kiln were exempted from the bye-law for a defined period. The bye-law subject to this modification was confirmed by the Ministry of Health and is now in operation. I should like to place on record an appreciation of the way in which Birmingham industries as a whole respond to appeals on this subject.

Towards the end of the year the City Council obtained extended powers for dealing with dilapidated property to which Part 1 of the Housing Act, 1925, would be applicable; and these powers are now being put into effect.

The special block for the treatment of venereal diseases was completed at the Birmingham General Hospital, and brought into use in the autumn. This important work will there be continued under conditions greatly to the benefit of patients and of staff, and conducive to a fuller control of the disease in the City.

The particulars set out in the body of the report will show that the Maternity and Child Welfare Committee have been steadily and rapidly extending their work in the direction of ante-natal and post-natal care and supervision of the young child, in accordance with the scheme of development authorised by the City Council. The special enquiries carried out, not only in this but in other sections of the Public Health Department, are evidence of a keenness of interest which should be a source of satisfaction to your Committee.

I am,

Your obedient servant,

H. P. NEWSHOLME,
Medical Officer of Health.

June 30th, 1930.

CITY OF BIRMINGHAM.

REPORT OF THE MEDICAL OFFICER OF HEALTH
For the year 1929.

SUMMARY OF STATISTICS.

Area (in acres), 46,687.

Population (Census 1921), 919,444.

Estimated by Medical Officer, 1929, 981,000.

Estimated by Registrar-General, 1929, 968,500.

Number of inhabited houses (1921), 190,459.

Number of families or separate occupiers (1921), 203,813.

Rateable value, £6,734,408.

Sum represented by a penny rate, £25,733.

Extracts from vital statistics of the year 1929:—

Births—Legitimate, 16,188. Illegitimate, 615. } Birth Rate, 17.1. (On Registrar-General's figures, 17.5).

Deaths, 13,232. Death Rate, 13.5. (On Registrar-General's figures, 13.4).

Number of women dying in, or in consequence of, childbirth. From sepsis, 26. From other causes, 41.

Deaths of Infants under one year of age per 1,000 births:—

Legitimate, 77. Illegitimate, 128. Total, 79.

Deaths from Measles (all ages), 196.

Deaths from Whooping Cough (all ages), 123.

Deaths from Diarrhœa (under two years of age), 234.

I. POPULATION AND MORTALITY STATISTICS.

POPULATION.

There is considerable difficulty in forming a satisfactory estimate of the population of the City at the present time. It is eight years since the last Census was taken and during that period there has been a great decline in the birth-rate, so that the natural increase is less than it was in the previous intercensal period. On the othe hand the housing situation has almost certainly affected the usual flow of population to and from the City. After taking these factors into consideration, the population has been estimated for the year 1929 at 981,000. The official estimate of the Registrar General is 968,500.

BIRTHS.

(See page 87).

DEATHS.

The system of tabulation of both the mortality and morbidity records has been modified in such a way that fuller information will become available for each of the municipal wards. Each ward is now being treated for record purposes as a separate unit and the deaths and cases in it are being tabulated by age and sex as well as by cause. Previously they were tabulated by cause only. It is hoped under the new system to investigate more fully disparities existing between ward and ward, and to show how far they affect all ages or are confined to certain age periods, and whether they apply equally to both sexes.

Unfortunately, full use cannot be made of information of this character at present, as the age and sex constitution of the population in the wards is not known. When the Census is taken next year it will be possible to obtain this information. In the meantime the best that can be done is to contrast certain wards with the City as a whole in relation to the age and sex distribution of the mortality, and this will be done in the succeeding pages.

The deaths during the year 1929 numbered 13,232 which is 2,565 more than in 1928. This great increase occurred almost entirely in the first quarter of the year and was due to a widespread epidemic of influenza which coincided with a spell of unusually severe weather. Full particulars of this outbreak will be found on page 52.

The death-rate rose from 10.9 in 1928 to 13.5 last year. Previous death-rates are shown in the following table both for Birmingham and for England and Wales.

DEATH-RATES IN BIRMINGHAM AND ENGLAND AND WALES.

		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	14.3
1916-1920	,,	13.4	14.5
1921-1925	,,	11.5	12.2
1920	,,	12.6	12.4
1921	,,	11.3	12.1
1922	,,	12.1	12.8
1923	,,	11.0	11.6
1924	,,	11.6	12.2
1925	,,	11.7	12.2
1926	,,	11.3	11.6
1927	,,	11.6	12.3
1928	,,	10.9	11.7
1929	,,	13.5	13.4

In recent years the death-rate in Birmingham has almost always been below that of England and Wales, but last year it was slightly above.

A comparison of the death-rate in Birmingham with that of other great towns is afforded by the statement below. The figures are taken from the Registrar General's Return, which accounts for the Birmingham rate differing somewhat from the figure just given.

Comparative Death-Rates in Nine Largest Towns.

(Registrar General's Figures.)

London	13.8 per 1,000
Glasgow	16.5 ,,
Birmingham	13.4 ,,
Liverpool	14.8 ,,
Manchester	15.3 ,,
Sheffield	12.8 ,,
Leeds	16.3 ,,
Edinburgh	15.1 ,,
Bristol	12.8 ,,

The deaths for the year comprised those of 6,771 males and 6,461 females. The death-rate for males was 14.6 and for females 12.5, showing a distinct advantage as usual for the female population.

MORTALITY AT DIFFERENT AGE PERIODS.

The mortality at different age periods is shown below:—

	Approximate Population.	Deaths.	Approximate Death-rate per 1,000	Percentage of Total Deaths.
Under 1 year	15,900	1,324	83.3	10.0
1 and under 2	15,900	475	29.9	3.6
2 ,, 5	47,800	325	6.8	2.5
5 ,, 15	164,000	359	2.2	2.7
15 ,, 25	177,900	505	2.8	3.8
25 ,, 45	290,600	1,461	5.0	11.1
45 ,, 65	204,700	3,696	18.1	27.9
65 ,, 75	44,500	2,596	58.3	19.6
75 and upwards	19,700	2,491	126.4	18.8

During recent years there has been a marked increase in the number of people who live to old age. As shown by the above figures, however, there is still much scope for improvement. A death-rate of 83.3 in infants or of 29.9 in children between 1 and 2 years old cannot be accepted as satisfactory. The death-rates among older children and young adults are conspicuously lower. Taking the death-rates as a whole, it will be seen that 61.6 per cent. of the total mortality occurs before the age of 65, and 33.7 per cent. before the age of 45.

Some further particulars as to the age distribution of the mortality in groups of wards are given on page 12.

The next statement shows the principal causes of the mortality at the working years of life, between 15 and 65.

Deaths From Certain Causes at Age Periods.

Deaths from	15-25	25-45	45-65
Influenza	26	142	342
Pulmonary Tuberculosis	175	364	317
Cancer	12	117	632
Diseases of Nervous System	23	66	294
Diseases of Heart and Circulation	43	144	770
Respiratory Diseases	50	204	533
Diseases of Digestive System	22	82	210
Urinary System	20	60	159
Puerperal Diseases	8	55	3
Violence	58	106	177

The main facts to be noted here are that pulmonary tuberculosis is prominent as the greatest individual cause of death up to the age of 45, that cancer and heart disease take a heavy toll after the age of 45, while respiratory diseases are also a grave factor from early middle life onwards.

INFANT MORTALITY.

(See page 90).

MORTALITY IN WARDS.

Considerable disparity exists in the mortality in the different municipal wards as can be seen from the next statement:—

Death-Rates in Wards.

		Death-rate		
		1929.	1928.	1927.
Central Wards	St. Paul's	17.3	14.7	16.2
	St. Mary's	18.1	17.5	16.6
	Duddeston and Nechells	16.8	12.3	13.1
	St. Bartholomew's	16.0	12.9	13.4
	St. Martin's and Deritend	18.7	14.1	14.8
	Market Hall	16.7	13.3	12.5
	Ladywood	15.3	12.9	13.2
Middle Ring	Lozells	15.7	12.5	11.5
	Aston	15.4	11.6	12.1
	Washwood Heath	12.1	9.7	9.7
	Saltley	10.3	9.3	8.8
	Small Heath	10.5	9.9	8.6
	Sparkbrook	14.0	11.7	11.2
	Balsall Heath	15.1	12.2	13.2
	Edgbaston	13.9	9.7	11.2
	Rotton Park	15.1	10.7	12.4
	All Saints'	14.4	10.5	12.5
Outer Ring	Soho	14.8	10.7	11.7
	Sandwell	11.8	9.3	9.7
	Handsworth	13.0	9.8	10.6
	Perry Barr	6.8	3.2	—
	Erdington North	10.0	8.2	9.4
	Erdington South	10.2	9.2	7.9
	Yardley	9.7	7.8	8.8
	Acocks Green	9.5	8.3	8.8
	Sparkhill	10.6	7.8	10.0
	Moseley and King's Heath	11.8	9.5	10.6
	Selly Oak	10.8	9.1	9.7
	King's Norton	9.8	9.7	8.9
	Northfield	10.3	10.2	9.2
	Harborne	11.8	8.7	10.7

St. Martin's and Deritend Ward had the highest death-rate last year, closely followed by St. Mary's Ward. The lowest ward death-rate was in Perry Barr where there is only a small and scattered population at present. Comparatively good death-rates were recorded in most of the suburban wards, but even there the mortality showed a marked increase on that recorded in 1928; indeed every ward in the city shared more or less in the increased death-rate.

The average death-rate in the three groups of wards has been as follows:—

	Central Wards.	Middle Ring.	Outer Ring.
1925	14.5	11.6	9.3
1926	14.1	10.9	9.2
1927	14.3	11.1	9.7
1928	14.0	10.8	8.7
1929	17.0	13.6	10.8

The position of the different wards, as well as the death-rate in them, is shown on the diagram on the opposite page, the central wards being indicated by the thick line and the middle ring by the broken line.

DEATH-RATES IN WARDS.

The relative mortality in the three groups of wards from some of the largest individual causes of death is shown below:—

	Influenza.	Cancer.	Heart Disease, etc.	Bronchitis, Pneumonia, etc.
Central Wards	1.09	1.34	3.09	3.40
Middle Ring	1.18	1.41	2.85	2.29
Outer Ring	0.96	1.27	2.35	1.49

The Central Wards suffered more than twice as high a mortality from respiratory diseases as the suburban wards. To a smaller extent the Central Wards show a similar disadvantage in relation to heart disease. On the other hand cancer and influenza cannot be said to show any great difference in incidence as between the three groups.

The death-rates from the above diseases in the individual wards are given in succeeding pages, and the incidence of the principal infectious diseases (including tuberculosis) is given in the section on infectious diseases at page 42).

As already stated, the deaths in wards were tabulated last year according to age and sex as well as by causes, and some comment on the age and sex distribution may be of interest.

The relative proportion of male to female mortality in the three groups of wards and in the City as a whole has been as follows:—

	Proportion of deaths of males to 100 deaths of females.
Central Wards	111
Middle Ring	104
Outer Ring	99
City	105

It is not at present possible to say with certainty what are the factors at work in the Central Wards to cause the relative preponderance of mortality among males.

The age distribution of the mortality can be seen from the following figures:—

Deaths from all causes.
Proportion per cent. at different age periods.

	0—	1—	2—	5—	15—	25—	45—	65—	75	All ages
Central Wards	14.0	6.1	3.3	3.1	3.4	10.6	27.3	17.9	14.3	100
Middle Ring	8.2	2.8	2.2	2.2	4.0	10.6	29.4	21.5	19.1	100
Outer Ring	8.5	2.3	2.0	3.0	4.0	12.1	26.8	18.9	22.4	100

Contrasting the Central Wards with the Outer Ring, it will be seen that there is a marked difference in the age incidence of the mortality. No less than 20.1 per cent. of the deaths in the Central Wards occurred in children under 2 years old; in the Outer Wards the percentage was only 10.8. Similarly the proportion of deaths among children aged 2 to 5 years was more than half as high again in the Central Wards as in the Outer Ring.

At the other end of the scale the figures naturally are reversed. Thus, in the Central Wards the proportion of deaths at ages over 65 years is only 32.2 per cent. but in the outer wards it was 41.3. It is clear, therefore, that a much larger proportion of people living in the Outer Wards reach the full span of human life than is the case in the Central Wards.

PRINCIPAL CAUSES OF DEATH.

The principal causes of death at all ages during 1929 were as follows:—

PRINCIPAL CAUSES OF DEATH, 1929.

	Number of deaths in 1929.	Proportion per 1,000 deaths from all causes.	Average No. of deaths 1919-28.
Measles	196	15	(119)
Whooping Cough	123	9	(150)
Diphtheria	86	7	(112)
Influenza	1,066	80	(386)
Tuberculosis (all forms)	1,066	80	(1,042)
Tuberculosis of respiratory system	*918*	*70*	(898)
Other forms of Tuberculosis	*148*	*11*	(144)
Cancer—Malignant Disease	1,314	99	(1,144)
Diseases of nervous system and sense organs	960	72	(950)
Total diseases of heart and circulation	2,707	205	(1,840)
Diseases of Heart	*2,094*	*159*	(1,409)
Other diseases of circulatory system	*613*	*46*	(431)

Total diseases of respiratory system ...	2,218	168	(1,969)
Bronchitis	*724*	*55*	(899)
Pneumonia—all forms	*1,352*	*102*	(945)
Other diseases of respiratory system...	*142*	*11*	(125)
Total diseases of digestive system ...	747	57	(688)
Diarrhœa and enteritis	*276*	*21*	(269)
Other diseases of digestive system ...	*471*	*36*	(419)
Non-venereal diseases of genito-urinary system	522	39	(362)
Premature birth and diseases of early infancy	612	46	(694)
Old age	269	20	(480)
Violence (all forms)	565	43	(420)
Other causes	781	59	(663)
Total Deaths	13,232	1,000	(11,020)

The largest causes of death in the above list are influenza, 1,066 deaths (see page 52), tuberculosis, 1,066 deaths (see page 57), cancer, 1,314 deaths, heart and circulatory diseases, 2,707 deaths, and respiratory diseases, 2,218 deaths.

CANCER.

There were 1,314 deaths from cancer last year against 1,321 in 1928, and 1,313 in 1927. The death-rate from this cause would appear to have been practically stationary during the last three years, as will be seen from the table below.

Death-Rate per 1,000 from Cancer.

	Birmingham.	England and Wales.
1920	1.12	1.17
1921	1.12	1.21
1922	1.18	1.23
1923	1.17	1.27
1924	1.30	1.30
1925	1.27	1.34
1926	1.26	1.36
1927	1.36	1.38
1928	1.35	1.42
1929	1.34	—

The incidence of cancer as a disease of the middle years of life is seen in the figures below :—

Cancer Mortality at Various Ages.

	Deaths, 1929.	Death-rate per 1,000.
Under 25 years	16	.04
25—44 years	117	.40
45—64 years	632	3.09
65—74 years	360	8.09
75 years and over	189	9.59

Nearly one half of the deaths occurred between the ages of 45 and 65 years.

The ward mortality does not indicate a distribution similar to that found in most of the major causes of death. The figures given below suggest that the disease has no greater incidence in the poorer central areas than in the remainder of the City.

Cancer Death-Rates in Wards.

	Ward.	Death-rate 1929.	
Central Wards ...	St. Paul's	1.64	Average 1.34
	St. Mary's	1.29	
	Duddeston and Nechells	1.06	
	St. Bartholomew's	1.26	
	St. Martin's and Deritend	1.23	
	Market Hall	1.77	
	Ladywood	1.11	

Middle Ring ...	Lozells	1.36		
	Aston	1.69		
	Washwood Heath	1.41		
	Saltley	0.75		
	Small Heath	0.98	Average 1.41	
	Sparkbrook	1.43		
	Balsall Heath	1.63		
	Edgbaston	1.45		
	Rotton Park	1.72		
	All Saints	1.65		
Outer Ring ...	Soho	1.89		
	Sandwell	1.34		
	Handsworth	1.69		
	Perry Barr	0.71		
	Erdington North	0.90		
	Erdington South	1.50		
	Yardley	0.84	Average 1.27	
	Acocks Green	1.00		
	Sparkhill	1.22		
	Moseley and King's Heath	1.61		
	Selly Oak	1.29		
	King's Norton	1.25		
	Northfield	0.78		
	Harborne	1.70		

In all deaths from Cancer an effort is made to ascertain the part of the body which first became affected. Last year the figures were as follows :—

1.	Lips, tongue, palate or jaw ...	64	
2.	Pharynx, œsophagus, stomach, liver	415	
3.	Peritoneum, intestine, rectum	279	
			758
4.	Female organs of reproduction	155	
5.	Breast	119	
			274
6.	Skin		14
7.	Other organs		268
			1,314

These figures show that in more than half the deaths the apparently primary site of the disease was in the alimentary tract.

DISEASES OF THE HEART AND BLOOD VESSELS.

There were 2,707 deaths from diseases of the heart and circulatory system as compared with 2,353 in 1928. The death-rates during the past 10 years have been as follows :—

	Birmingham.	England and Wales.
1920	1.72	1.75
1921	1.64	1.80
1922	1.85	2.00
1923	1.71	1.93
1924	1.91	2.04
1925	2.12	2.16
1926	2.12	2.18
1927	2.28	2.49
1928	2.41	2.67
1929	2.76	—

The ages at death and death-rate per thousand were as follows:—

	Deaths.	Death-rate per 1,000.
Under 25 years	75	.18
25—44 years	144	.50
45—64 years	770	3.76
65—74 years	808	18.16
75 years and over	910	46.19
All ages	2,707	2.76

The greater part of the mortality under this heading occurs in persons over 65 years of age. There were, however, 914 deaths, about one-third of the total, between the ages of 25 and 65, a serious loss of life at an age period when the individual should be of particular value to the community.

The mortality in the municipal wards is shown in the next statement:—

DEATH-RATES FROM DISEASES OF HEART AND BLOOD VESSELS.

	Ward.	Death-rate 1929.	
Central Wards ...	St. Paul's	2.79	Average 3.09
	St. Mary's	2.96	
	Duddeston and Nechells	3.11	
	St. Bartholomew's	3.04	
	St. Martin's and Deritend	4.27	
	Market Hall	3.17	
	Ladywood	2.29	
Middle Ring ...	Lozells	3.07	Average 2.85
	Aston	3.69	
	Washwood Heath	2.06	
	Saltley	1.64	
	Small Heath	2.10	
	Sparkbrook	3.16	
	Balsall Heath	3.86	
	Edgbaston	3.15	
	Rotton Park	2.56	
	All Saints	3.17	
Outer Ring ...	Soho	3.51	Average 2.35
	Sandwell	3.28	
	Handsworth	3.27	
	Perry Barr	0.36	
	Erdington North	1.91	
	Erdington South	2.33	
	Yardley	1.61	
	Acocks Green	1.99	
	Sparkhill	2.19	
	Moseley and King's Heath	2.83	
	Selly Oak	2.05	
	King's Norton	1.89	
	Northfield	3.04	
	Harborne	2.71	

It will be seen that the Central wards suffered a higher mortality than the outer ring, but the disparity is not so great as in many other causes of death.

BRONCHITIS, PNEUMONIA AND OTHER RESPIRATORY DISEASES.

There were 2,218 deaths from these diseases last year. The death-rate has been as follows :—

	Birmingham.	England & Wales.
1920	2.46	2.17
1921	2.02	1.96
1922	2.38	2.31
1923	1.98	1.87
1924	2.15	2.13
1925	1.97	2.00
1926	1.88	1.74
1927	1.89	1.93
1928	1.56	1.51
1929	2.26	—

The age periods at which the mortality occurred are shown below :—

	Deaths.	Death-Rate per 1,000.
Under 1 year	265	16.67
1—2 years	193	12.14
2—4 years	93	1.95
5—24 years	83	0.24
25—44 years	204	0.70
45—64 years	533	2.60
65—74 years	413	9.28
75 and over	434	22.03

These figures show that respiratory diseases were a formidable cause of death in the early years of life as well as towards its close. Thus 551 deaths occurred at ages under 5 years; of these a substantial proportion must have been capable of prevention.

The distribution of the deaths from respiratory diseases over the wards of the City was as follows :—

DEATH-RATE PER 1,000 FROM RESPIRATORY DISEASES.

	Ward.	Death-rate 1929.	
Central Wards ...	St. Paul's	3.09	Average 3.40
	St. Mary's	4.12	
	Duddeston and Nechells	3.94	
	St. Bartholomew's	2.81	
	St. Martin's and Deritend	3.16	
	Market Hall	3.54	
	Ladywood	3.14	
Middle Ring ...	Lozells	3.04	Average 2.29
	Aston	3.06	
	Washwood Heath	2.11	
	Saltley	1.64	
	Small Heath	1.78	
	Sparkbrook	2.08	
	Balsall Heath	2.37	
	Edgbaston	1.68	
	Rotton Park	2.86	
	All Saints'	2.29	
Outer Ring ...	Soho	2.26	Average 1.49
	Sandwell	1.84	
	Handsworth	1.79	
	Perry Barr	0.71	
	Erdington North	1.53	
	Erdington South	1.33	
	Yardley	1.40	
	Acocks Green	1.19	
	Sparkhill	1.55	
	Moseley and King's Heath	1.53	
	Selly Oak	1.66	
	King's Norton	1.33	
	Northfield	1.48	
	Harborne	1.24	

In the case of respiratory diseases there is a very marked difference in mortality in different parts of the City, the average death-rate in the central wards being last year two and a half times as high as that in the outer ring. Evidently the conditions which exist in these wards have a close relation to a high mortality from respiratory diseases.

II. GENERAL HEALTH SERVICES.

HOSPITAL PROVISION.

The following is a list of Birmingham Hospitals (other than private hospitals) and the accommodation provided by them. Those marked (c) are supported wholly by the City Council, those marked (p) partly so.

	No. of beds.
A.1.—Fever.	
City Hospital, Little Bromwich (c)	466
,, Witton (c)	70
2.—Smallpox.	
Witton Smallpox Hospital (c)	24
B.1.—Tuberculosis.	
Yardley Road Sanatorium (c)	325
West Heath Sanatorium (c)	116
Salterley Grange Sanatorium, Cheltenham (c)	68
Romsley Hill Sanatorium, Halesowen (c)	120
(Also about 100 beds in the Royal Cripples' Hospital and a few beds in the general hospitals towards the maintenance of which the City Council makes a grant).	
2.—Maternity.	
Maternity Hospital (p)	65
Heathfield Road Maternity Home (c)	18
Wake Green Road Maternity Home (c)	21
Also a number of beds (70) in the Poor Law Hospitals. (The City Council makes a grant for certain of these).	
3.—Children.	
The Children's Hospital (p)	167
City Babies' Hospital (c)	50
Carnegie Institute (c)	9
(Also certain beds (about 250) in the Poor-Law Hospitals).	
4.—Orthopædic.	
Royal Cripples Hospital (p)	268
5.—Other.	
(a) *General Hospitals*—	
The General Hospital	399
Jaffray Hospital	61
Homœopathic Hospital	50
Queen's Hospital	350
Dudley Road (Poor Law)	884
Selly Oak (Poor Law)	550
St. Chads	100
(b) *Special Hospitals* (exclusive of mental hospitals).	
Women's Hospital (p) and Taylor Memorial Home	135
Eye Hospital (p)	115
Ear and Throat Hospital	51
Skin and Urinary Hospital	22
Nerve Hospital	37

DEATHS IN HOSPITALS AND LARGE INSTITUTIONS.

Some idea of the very important part which the hospitals and kindred institutions play in the treatment of the sick can be obtained from the returns showing the deaths which take place in them. Last year such deaths numbered 5,611 out of a total of 13,232. It may be of interest to give the numbers for some of the larger institutions which were as follows:—

Dudley Road Hospital	1,309
Selly Oak Hospital	845
General Hospital	448
Queen's Hospital	238
Children's Hospital	189
Women's Hospital and Taylor Home	69
Maternity Hospital	61

City Fever Hospitals	146
City Mental Hospitals	176
City Sanatoria	282
Western Road House	455
Selly Oak House	272
Erdington House	573
Private Hospitals	175
Institutions outside the City	332

The records show that 87 per cent. of th deaths from diphtheria occurred in hospital, nearly all of them being at the City Fever Hospital. This is the largest proportion of any of the more prominent causes of death. The number of deaths and percentage of the total is given for certain of the principal causes of death in the list below :—

DEATHS IN INSTITUTIONS.

	No. of Deaths.	Percentage of Total Deaths from this cause.
Measles	100	51%
Whooping Cough	60	49%
Diphtheria	75	87%
Influenza	184	17%
Tuberculosis of Respiratory System	387	42%
Other forms of Tuberculosis	99	68%
Cancer	505	38%
Diseases of Nervous System	441	46%
Diseases of Heart and Circulatory System	1,083	40%
Bronchitis	148	20%
Pneumonia	643	48%
Other Respiratory Diseases	45	32%
Diseases of Digestive System	510	68%
Genito-urinary System	297	57%
Premature Birth, etc.	249	41%
Old Age	53	20%
Violence	309	55%
Other causes	423	54%
Total	5,611	42%

AMBULANCE FACILITIES.

There is a good and efficient motor ambulance service for all purposes in the City.

A.	For acute infectious diseases the Public Health Department have ...	4 ambulances.
	For Tuberculosis the Public Health Department have	2 ambulances.
B.	For accidents the City Police have	8 ambulances.
	For cases of illness requiring removal to or from hospital or otherwise, the Birmingham County Joint Committee (Order of St. John and British Red Cross Society) at the cost of the patient, or of the Corporation, have	5 ambulances
	Dudley Road Hospital has	5 ambulances.
	Selly Oak Hospital has	2 ambulances.

In addition there are ambulances attached to other hospitals or factories.

INSTITUTIONS FOR UNMARRIED MOTHERS AND THEIR BABIES.

Provision is made for these, at Hope Lodge, Clarendon Road, and at the Day Servants Hostel in Monument Road by the Association for the Training and Care of unmarried Mothers and their Babies; also at The Hawthorns, Ladywood Road, by the Salvation Army, and at Woodville, Selly Oak by the Roman Catholic Church. The Public Health Committee make grants towards the cost of maintenance in these institutions.

CLINICS AND TREATMENT CENTRES.

Maternity and Child Welfare Centres (see page 87)	28
Day nurseries	0
School Clinics (see Report of School Medical Officer)	8
Tuberculosis dispensaries (see page 64)	1
Venereal Diseases, Treatment Centres (see page 78)	3

PROFESSIONAL NURSING IN THE HOME.

The supply of nurses for general purposes is provided by the City of Birmingham Nursing Association. This association provides district nurses and also undertakes to nurse any cases of measles, whooping cough or pneumonia which are referred to it by the Public Health Department, at a uniform charge of 20/- per case. In any cases of the above diseases coming in the first place to the knowledge of the District Nursing Association a similar fee is paid provided the name and address of the patient are sent to the Public Health Department forthwith.

The Little Sisters of the Assumption, Edgbaston, attend cases of non-infectious disease in poor homes, and look after the house and children. No fee is charged.

For better class cases, nurses may be obtained from one of the many nursing organisations in the City.

GENERAL HEALTH VISITING.

Early in the year 1929, the work of the Health Visitors was re-organised.

The duties of the General Health Visitors include infant visiting and attendance at the Maternity and Child Welfare Centres, and in addition, the visiting of cases of non-notifiable infectious disease which are notified from the school teachers as occurring in the streets in which their routine visits to infants are being paid.

Of the remainder of the Visitors, eight have formed the Special Staff whose work includes visiting the bulk of the non-notifiable infectious cases reported by the school authorities, and cases of scabies and verminous children notified from the same source. They also deal with any instances of overcrowded or unclean homes which have been brought to the notice of the Department.

One Visitor has been assigned to the work of the immunisation clinics which have been held in the Council House, in the Child Welfare Centres, and in the elementary schools. After the necessary inoculations this Visitor pays special visits to the homes of the children to note the result and to advise when necessary.

MIDWIVES.

(See page 119).

MATERNITY AND NURSING HOMES.

(See page 120).

MATERNAL MORTALITY.

(See page 120).

NEW LEGISLATION IN FORCE.

The following local Acts of Parliament and Bye-laws came into force in the City during the year.

Local Acts.

The Birmingham Corporation (General Powers) Act, 1929 ...	On Dec. 20th, 1929.

Bye-Laws.

Houses Let in Lodgings, 1929	On May 15th, 1929.
Smoke Abatement, 1929	On Dec. 7th, 1929.

III. SANITARY CIRCUMSTANCES

WATER SUPPLY.

Periodical examinations, both chemical and bacteriological, were made of the Corporation Supply throughout the year. The results shewed that the quality of the water had been maintained at its normal high standard of purity.

The quality of the water supply to a number of individual houses still drawing on surface wells for their supply was investigated. In 40 instances the owners were advised as to the very unsatisfactory nature of this supply.

POLLUTION OF RIVERS AND STREAMS.

(Report of the Tame Basin Joint Committee).

Summary of Year's Work.

The Tame Basin Joint Committee has now completed the eighth year of its endeavour to improve the condition of the River Tame and its tributaries by obtaining a cessation of pollution, both liquid and solid, and it is pleasing to be able to state that there has been a continuance of the response to the policy of persuasion practised by the Committee on the part of both the Local Authorities and traders situated within the water-shed.

The observations upon the River Tame undertaken annually in connection with the Hydrographical Survey of the River Trent, have this year been made during an exceptionally dry period, and practically the whole of the natural sources of dilution of the River have been non-existent, with the result that the stream has been composed almost wholly of the discharges from sewage disposal works and factories.

The quality of the Wolverhampton branch of the Tame has been maintained, but it is anticipated a marked improvement in the condition of this tributary will be observed following the completion and bringing into operation during the present year of the new sewage disposal works of the Wednesfield Urban District Council. The imperfectly treated sewage discharged to the stream, owing to the total inadequancy of the disposal site of this Authority, has been one of the outstanding sources of pollution of the Wolverhampton branch of the River.

The Oldbury branch of the River, which receives large volumes of only partially treated sewage from the disposal works of the West Bromwich Corporation and the Oldbury Urban District Council, has shown a marked deterioration in quality, and has been almost devoid of oxygen. The River water, however, at the point where the stream enters the City of Birmingham, has shown a steady increase in the average percentage of oxygen saturation since the year 1925, and at Castle Bromwich, where the River leaves the City, the remarkably high figure of 90.50 per cent of oxygen saturation was obtained in August last year, and small fish exist in the River within the City of Birmingham.

The report on the work during 1926, 1927, and 1928 of the Standing Committee on River Pollution, Ministry of Agriculture and Fisheries states: "There is no doubt that the Tame has much improved on its former state owing to the work of the Tame Basin Joint Committee."

The Government Advisory Committee on River Pollution has been engaged during the past year upon the thorough investigation of the subject of the Admission of Liquid Trade Waste to the Sewers of Local Authorities, and its influence upon the question of Rivers Pollution, and in this connection they have considered a statement as to the local practice of the Tame Basin Joint Committee.

It is suggested that by adopting a sympathetic attitude towards the traders upon this question, your Committee has probably anticipated the opinion that such legislation will be recommended in the near future as will encourage the more general and consistent application of the principle of disposing of the liquid trade waste produced in industry by permitting its discharge into the sewers of the Local Authorities.

During the past year three sources of pollution of the Upper River Tame have been permanently removed in this desirable manner, and the consent has already been given by a Local Authority to a trader erecting new premises that he may also avail himself of this method of disposal of the liquid trade waste.

The traders who have no sewers available for the reception of liquid refuse produced in their manufacturing processes have continued to respond to the requests of your Committee. In one instance, extensive settling tanks have been constructed and brought into operation, and mechanical apparatus provided to ensure that the deposited material is regularly and effectively removed from the tanks. In another instance, measures for the satisfactory disposal of liquid refuse were discussed with the trader, and the adoption of these before the manufacturing process was brought into operation has totally prevented the pollution of the stream from this source.

Excellent work has also been undertaken by a number of Local Authorities for the prevention of pollution of the streams by domestic sewage.

The Birmingham Tame and Rea District Drainage Board have greatly increased the capacity of bio-aeration sewage purification plant at their works. The capacity of one unit has been increased from seven and a half to ten million gallons per day, and a further new unit of a capacity of ten million gallons per day is ready for being brought into operation. A new sludge pumping plant is being installed, and additional sludge dewatering tanks are being constructed.

The construction of new sewage disposal works is being undertaken by two of the Local Authorities in the area, and extensions to the process of sewage purification have been completed and brought into operation by three other authorities.

The appointment of competent Managers of their Sewage Disposal Works by two Local Authorities has resulted in a marked improvement both in the efficiency of the purification process and the appearance of the works generally.

T. L. WARDMAN.

19th May, 1930

SEWERAGE WORKS.

(By Mr. H. H. Humphries, M.Inst.C.E., City Engineer and Surveyor).

The following sewerage works were carried out during 1929:—

	Miles.
Perry Barr Sewerage, Part 1.	3.65
Perry Barr Sewerage, Part 3, Section 1.	3.16
,, ,, ,, ,, Section 2.	8.07
Coventry Road Sewerage	2.41
Harborne Lane Sewerage	.41
Spies Lane and Hagley Road West	1.06
Westley Brook and Sewer Reconstruction	.86
Tennal Road and Court Oak Road Sewerage	1.34
Griffins Brook Valley Sewer Extension	3.77
Allens Cross Farm Housing Estate	6.93
Warren Farm Housing Estate	16.00
Gospel Lane, Lakey Lane and Gospel House Farm Estate Sewerage	7.00
Tennal Hall Estate	6.42
Daisy Farm Estate	2.88
Total	63.96

SCAVENGING AND REFUSE DISPOSAL.

(By Mr. James Jackson, M.I.C.S., Superintendent of the Salvage Department).

Disposal of Refuse.

The policy of the City Council is to abolish the tipping of crude house refuse and in this connection the Salvage Committee are proceeding with a definite scheme of building new modern salvage utilisation works and reconstructing existing refuse disposal works where required.

During the past eight years two new salvage works have been built and two of the existing plants have been modernised and extended, at a total capital expenditure of £250,000.

The fifth item in the scheme for the abolition of tipping crude house refuse, is the rebuilding and modernising of the existing Rotton Park Street Disposal Works. This work has now been commenced and it is anticipated that the new plant will be fully working in about eighteen months time. These works will embody all the latest devices for scientifically and economically dealing with house refuse. The capital cost will be £110,000.

With the completion of the Rotton Park Street works, there will only be one more of the existing disposal works to be dealt with, in order to complete the scheme for the total abolition of tipping crude refuse. This consists of the extension and modernisation of the existing Montague Street Depot. Upon completion of this scheme, the City will be divided into six collection areas, each served with a modern utilisation works, capable of dealing with the whole of the refuse produced in the district served by each of the salvage works.

Voluntary Dustbin Hire Scheme.

Steady progress has been maintained, and the following table shews the number of owners and the bins provided under this scheme since its inception.

	No. of Owners.	No. of bins supplied. Large.	Small.	Total.
Year ended 31st March, 1924	940	5,465	-	5,465
,, ,, ,, ,, 1925	931	6,889	-	6,889
,, ,, ,, ,, 1926	1,066	8,414	-	8,414
,, ,, ,, ,, 1927	967	6,911	-	6,911
,, ,, ,, ,, 1928	745	5,696	786	6,482
,, ,, ,, ,, 1929	732	1,912	3,909	5,821
1st April 1929 to 31st Jan., 1930 ...	619	2,001	4,686	6,687
Total to Jan. 31st, 1930	6,000	37,288	9,381	46,669

Dustless Loading.

The Department is carrying out careful investigations in this matter, and prolonged trials of various vehicles fitted with special covers for dustless loading have been made. The Department will continue to carry on their investigations.

Cesspools.

There are 489 Cesspools in the City which are being emptied by the Salvage Department, and during the year 1929, 34 cesspools have been connected to the sewers. Practically all these are situated in outlying parts of the City but there are two cesspools situated in populous areas of the City; one into sewage drains, and the other waste water only.

Privy Pans.

There are 466 privy pans in the City, and during the year 1929, 18 pan closets have been converted into W.Cs.

No privy pans serving dwelling houses are situated in populous areas.

Privy Middens.

The number of privy middens in the City is 213, and during the year 1929, 26 have been converted into W.Cs.

SANITARY INSPECTION.

During 1929 considerable re-arrangement was made in the work of the Sanitary Inspectors. The visiting of Common Lodging Houses, Houses let in Lodgings, Workshops and Milkshops, which had previously been done by special inspectors, is now undertaken by the general Sanitary Inspectors, the special inspectors for these duties having been absorbed into the general staff. A considerable amount of duplication of visiting, with consequent wastage of effort, is thus saved. The areas for the purpose of sanitary inspection have been revised and have been arranged on a radial plan, with ten districts radiating from the City Centre to the City boundary, each area being reached by at least two bus or tram routes, one at each radial border. By this arrangement every district contains both old, poor-class property near the centre, and newer and superior property in its out-lying portion, allowing both of means of standardisation of work in each area, as well as relief for the inspectors by variety of work. The mobility of the staff of inspectors is increased, while it will be simpler to concentrate on the needs of the older parts of the City than was practicable under the previous arrangement of areas and staff. The amount of time spent in travelling will also be reduced, giving more time for effective visiting. The system of records of work has been brought on to a card index basis and so arranged as to allow of much previously recorded by the Inspectors to be entered by the clerical staff. It is fitting to add that the way in which the staff of inspectors and clerks have responded to the difficulties, unavoidable owing to the changes here outlined, has been altogether admirable.

Certain branches of work remain under special Inspectors. Thus three inspectors are engaged in work under the Food and Drugs Acts, two in observing and dealing with Smoke Nuisances, two in carrying out the duties under the Shops Acts, and one in the supervision of Canal Boats.

In connection with these re-arrangements, the staff of Inspectors has been increased from 46 to 48, and of Clerks in the Sanitary Department from 7 to 10.

The total number of visits and re-visits paid during the year by the general Sanitary Inspectors was 149,106, the principal items in this total being as follows: —

In connection with Infectious Diseases (chiefly Scarlet Fever, Diphtheria and Enteric Fever) ...	10,380
Systematic House Inspection	37,880
On complaints received	64,845
To Houses let in Lodgings	4,081
To Common Lodging Houses	810
For drain-testing by smoke	450
,, ,, water	189
To inspect drainage repairs	2,429
To tents, vans and sheds	521
To offensive trade premises	238
To stables with manure receptacles	735
Under the Rats Order	2,260
To Milkshops	4,962
To Ice Cream Vendors	1,993
To Workshops and Factories	7,551

As a result of these visits, 20,620 informal notices were sent to owners or tenants, calling attention to sanitary defects. These were complied with without further action in some 70% of the total. In regard to the remaining 6,677 cases, formal notices were served in accordance with the terms of the legal enactments infringed. In 94% of these cases the formal notice was followed by compliance with the requirements. In the remaining 350 cases, summonses were issued. These concerned a comparatively small number of property owners. In a large proportion of these the work was put in hand as soon as the summons was issued. It clearly might have been put in hand earlier given greater willingness or greater energy on the part of the owner. Under the Birmingham Corporation (General Powers) Act 1929, the magistrates are given power to impose a penalty not exceeding £5 in such cases, where commencement of work is postponed till issue of a summons.

The nature of conditions for which notices were served is illustrated below:—

Houses to be disinfected	3,868
Repairs to Houses	137,083
Houses to be cleansed by owner	7,554
,, ,, ,, tenant	106
Houses to have better ventilation	425
Houses to have separate water supply	1,967
Houses to be provided with Damp Course	182
Water or filth to be removed from cellars	431
Spouting to be put in order	5,830
Water closets to be repaired or reconstructed	8,104
Water closets to be cleansed	2,865
Additional Water Closets to be provided	168
Ashplaces to be repaired or limewashed	328
Soilpipes to be repaired or removed	405
Defective drains	4,922
Additional drains needed	1,026
Sanitary sinks to be provided	1,518
Sink bend pipes to be repaired or affixed	2,201
Yards to be paved or repaired	2,829
Wash houses to be repaired or limewashed	4,000
Accumulations of rubbish, manure, etc., to be removed ...	318

Under the Birmingham Corporation Act, 1914, the Corporation had power to order a separate water supply inside any house in which there is a scullery, the Corporation being required to pay one third of the cost. Under this provision 986 houses were last year provided with a separate water supply inside the house. Previously, these houses drew their water from taps in the yard, often a considerable distance from the house. The lack of an internal water supply is one of the grave disadvantages from a health standpoint in many of the older parts of the city. In the Birmingham Corporation (General Powers) Act 1929 the power to require a separate supply is extended to all houses whether they have sculleries or not, with the proviso that in houses without sculleries it can only be required after written request from the tenant. Under this new enactment the Corporation pay one-half of the cost.

COURT CLEANSING STAFF.

This staff is engaged in the periodical cleansing of some of the worst courts in the city, subject to an agreed charge to the owners. The number of courts which are regularly cleansed in this way is 176. The total number of cleansings effected last year was 12,653. The cleansing of the court includes attention to the water closets, ashplaces and drain traps.

FACTORIES AND WORKSHOPS.

The visits paid under the Factory and Workshops Acts numbered 7,551 (including 1,216 to outworkers' premises). As a result of these visits notices were served as follows:—

Want of cleanliness	498
Want of ventilation	26
Overcrowding	3
Want of drainage of floors	6
Other nuisances	223
Insufficient sanitary accommodation	62
Unsuitable or defective sanitary accommodation	412
Sanitary accommodation not separate for the sexes	27
Illegal occupation of underground bakehouse	2

SMOKE ABATEMENT.

Two sets of observations were made during the year:—

(1) By two Smoke Inspectors as to the amount of black smoke emitted from factory and other chimneys.

(2) By the City Analyst on the impurities found each month in the rainfall.

The latter is done for the Meteorological Office and is comparable with similar observations taken in a number of other towns.

Below is tabulated data relating to (1) above, of which there are some 1,133 chimneys, 411 of these being in connection with muffles.

	1929.	1928.	1927.	1926.
Total number of observations	4668	4857	4636	4716
Excessive Smoke—				
From Boiler Fires	95	99	105	104
From Boilers and Furnaces	13	16	18	17
From Metallurgical Furnaces	51	35	49	48
Total number of excessive emissions	159	157	172	169
Number of prosecutions	53	61	54	39
Convictions obtained	51	60	54	39
Total amount of fines	£71	£114	£86/10/0	£86/10/0
Average per case	£1/7/10	£1/18/0	£1/12/0	£2/4/4
Cautions given	94	83	113	124

The observations on the dirt content of the air at three separate sites in the City are fully recorded in the Annual Report of the City Analyst.

The figures for the City compare favourably with those for other large manufacturing towns.

OFFENSIVE TRADES.

During the past year a general survey and detailed investigation has been carried out in relation to offensive trades carried on in the City.

In all there are 154 firms carrying on 9 offensive trades. In the majority of cases, subject to supervision, the firms may be said to conduct their business with the production of little or no nuisance, and in general are complying with existing byelaws. It must be understood, however, that the potentiality for any of these trades to cause nuisance is so serious that great importance is to be attached to the maintenance of a sufficiently high standard of cleanliness.

The total number of visits paid by the Sanitary Inspectors to premises where offensive trades are carried on was 238.

The Public Health Committee considered the position of offensive trades in Birmingham in relation to Sect. 112 of the Public Health Act, 1875, as amended by Section 51 of the Public Health

Act (Amendment) Act, 1907. In order to remove legal difficulties it was decided to apply to the Ministry of Health for a revised Order in regard to a number of offensive trades, and the approval of the City Council was obtained in March 1930 to the submission of a draft order to the Ministry of Health for confirmation.

COMMON LODGING HOUSES.

At the end of the year there were 31 registered Common Lodging Houses in the City, affording accommodation for 1,971 males and 110 females.

It is satisfactory to note that the general high standard of cleanliness and sanitation continues to be maintained in these establishments.

It was not found necessary to resort to legal proceedings to remedy any of the contraventions which were found.

No. of houses on register (for males only)	27
No. of houses on register (for females only)	4
No. of lodgers allowed	2081
Houses registered during year	—
Houses closed during year	—
No. of day visits	763
No. of night visits	47
Average number of persons found	1230
Contraventions of byelaws found and dealt with :—	
Paving, drains, waste pipes, cisterns, etc., requiring repair	404
Miscellaneous contraventions :—obstructed drains, accumulation of rubbish, etc.	807
No. of summonses	—

HOUSES LET IN LODGINGS.

These houses, which for some considerable time have demanded close scrutiny and observation owing to their poor character and lack of comfort and conveniences, will be more adequately controlled and the defects become more easily remedied through the revised Byelaws. These were confirmed by the Ministry of Health in May, 1929, but were not in active operation till the early autumn, by reason of the necessity for advertisement, notification of premises already registered, etc. It is hoped that a very considerable improvement will have been effected in this class of house within the near future.

Below are given data relating to these lodgings. It has to be borne in mind that during the period of revision of the byelaws, covering nearly three quarters of the year, it was inadvisable to require adjustments which, under the new byelaws, could be enforced in a much more drastic form. Further, the new byelaws allow a time limit for registration of houses let in lodgings, during which period it was not appropriate to issue notices for repairs or alterations. The notices tabulated therefore apply in part to only a short portion of the year :—

Number of houses on register	522
Number of rooms let as single rooms	1099
Number let two or more rooms together	689
Certified accommodation	6044
Number of visits	4081
Notices for repairs	52
,, ,, overcrowding	7
,, ,, cleansing	518
,, ,, provision for cooking	5
,, ,, fire extinguishers	4
,, ,, lighting on stairs	4
,, ,, water supply	4
Sundries	13
Summonses issued for non-compliance with Byelaws	127

CANAL BOATS.

The work of inspecting these boats is carried out by one inspector, who combines with this duty that of collecting samples of drinking water.

As will be seen from the following data the general health of the occupants remains good. There were only two cases of infectious disease, viz., diphtheria, during the year.

Inspection of Boats.

During the year 1929 the number of boats inspected on the canals within the City area was 1,155.

The 1,155 boats inspected were registered for the accommodation of 3,603 persons and when inspected were found to be carrying 1,442 men, 860 women, and 932 children, a total of 3,234 persons, represented in terms of adults as 2,768.

The following table shows the number of boats inspected during the last five years, giving the number of persons whom the boats were registered to accommodate and the actual number of occupants at the time of inspection :—

Year.	No. of boats inspected.	Registered to carry (adults).	Actually occupied by Men.	Women.	Children.	Total occupying.	Equivalent to adults.
1925	1,150	3,712½	1,414	816	798	3,028	2,629
1926	1,081	3,464	1,216	797	888	2,901	2,457
1927	986	3,165	1,087	808	856	2,751	2,323
1928	1,194	3,906	1,420	970	1,132	3,522	2,956
1929	1,155	3,603	1,442	860	932	3,234	2,768

Of the 1,155 boats inspected during the year it was found that 1,086 or 94 per cent. were in good condition and conforming with the Acts and Regulations, while in 69 or 6 per cent. of the total various contraventions were found. These are classified thus :—

Boats	with	one	contravention	each	17	making	total contraventions	17
,,	,,	two	contraventions	,,	29	,,	,, ,,	58
,,	,,	three	,,	,,	3	,,	,, ,,	9
,,	,,	four	,,	,,	20	,,	,, ,,	80
				Totals.	69			164

Complaint notes were duly served on the owners in all cases.

During the year certificates were returned by owners signed by the various Canal Boat Inspectors, showing that 165 complaints had been remedied.

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

Contraventions referring to	Outstanding and brought forward from 1928.	Found during 1929.	Remedied during 1929.	Carried forward to 1930.
Cabins requiring painting	12	47	46	13
Cabins requiring repairs	8	28	30	6
Requiring marking	8	44	41	11
Cabins leaking	7	25	26	6
Registration	—	6	6	—
Not producing certificates	—	3	3	—
Dirty cabins	—	—	—	—
Overcrowding	1	4	5	—
Separation of sexes	3	6	7	2
Water vessels	—	—	—	—
Pumps	—	—	—	—
Ventilation	—	—	—	—
No certificate identifying owner of boat	—	—	—	—
Cabins not habitable	—	1	1	—
Totals	39	164	165	38

It has not been necessary during the year to take any court proceedings under the above Acts or the Canal Boat Amendment Regulations, 1925.

Infectious Diseases.

Two cases of Diphtheria occurred on October 25th, in the boat " Bulbourne," Registered Number 1004, Birmingham, both being removed to hospital. The necessary disinfection of cabin and clothing was carried out, the respective Medical Officers of Health at the previous ports of call being duly notified, together with the owners.

Registration of Boats.

There was a net increase of 6 boats registered at Birmingham during the year, thus bringing the total up to 564.

The 564 boats on the register are classified as follows. It will be noticed that steam boats continue to remain at three :—

Ordinary boats	486
Steam boats	3
Motor boats	75
Total	564

Special Enquiry.

In addition to the above routine work a special investigation was carried out at the request of H.M. Inspector of Canal Boats, with a view of obtaining information regarding (1) overcrowding or otherwise in canal boats, and (2) families with homes ashore or otherwise.

(1) Enquiries were made in respect of 133 boats, and although these were registered to carry 473 persons they were found to be occupied by only 407.

An analysis of these 407 persons, equivalent to 339½ adults, shews them to be made up as follows :—

Men	166
Women	106
Children (under 5 years)	
Girls	22
Boys	19
Children (5 and over)	
Girls	43
Boys	51

(2) Enquiries were made in respect of the families in 218 canal boats, of which 61 had homes ashore, the remainder, 157, using the canal boat as their home.

Expressed as percentages this would be :—

With homes ashore	28%
Without ,, ,, ...	72%

SHOPS ACTS 1912—28.

The number of visits and investigations made was 8,311

The following contraventions of the Acts were reported :—

1. In 363 shops notices giving day of closing for weekly half holiday were not exhibited.
2. Notices declaring exempted goods were not displayed in 347 shops which had remained open after closing hour on weekly half holiday for the sale of such goods.
3. No provision of seating accommodation for female assistants had been arranged for in 20 cases.
4. In 314 instances the employers had failed to provide the prescribed form relating to the assistants' weekly half holiday.
5. In 13 cases it was found that the assistants were not having such intervals for meals as laid down in Act.
6. In 114 shops where young persons were employed the employers had failed to exhibit the notice referring to the specific provisions of the Act.
7. In 120 cases shops were found not to be closing at the statutory time.

Proceedings were taken against 99 shopkeepers for contraventions of the Acts and Closing Orders with the following results :—

(a) *Under the Butchers' Closing Order, 1921* (Shops Act, 1912).

1 Defendant was fined £10.
1 Defendant was fined £5.
2 Defendants were fined £3 each.
2 Defendants were fined £2 each.
7 Defendants were fined £1 each.
1 Defendant was fined 10/-.
1 Case was dismissed.

(b) *Under the Shops (Hours of Closing) Act, 1928. Serving after the specified closing hour.*

2 Defendants were fined £2 each.
15 Defendants were fined £1 each.
5 Defendants were fined 15/- each.
35 Defendants were fined 10/- each.
20 Defendants were fined 5/- each.
3 Defendants were fined 2/6 each.

(c) *Under the Shops Act, 1912.*

2 Defendants were fined 20/- each.
1 Defendant was fined 10/-.
1 Case was dismissed.

IV. HOUSING.

The total number of new houses built in the City and certified as fit for habitation was 6,815, of which number 4,359 were built by the Municipality and 2,456 by private enterprise.

The following table shows the number built during each year since 1920:—

	No. of houses erected by private enterprise.	Corporation houses.	Total.
1920	244	553	797
1921	426	970	1,396
1922	382	810	1,192
1923	556	1,621	2,177
1924	1,201	1,992	3,193
1925	1,774	3,215	4,989
1926	1,775	5,159	6,934
1927	2,445	4,007	6,452
1928	1,487	3,505	4,992
1929	2,456	4,359	6,815
Total ...	12,746	26,191	38,937

The wards in which new houses have been built since 1920 are indicated below:—

	Ward.	Houses erected by private enterprise.	Corporation Houses.	Total.
Central Wards.	St. Paul's	2	—	2
	St. Mary's	4	—	4
	Duddeston and Nechells ...	—	—	—
	St. Bartholomew's	2	196	198
	St. Martin's and Deritend ...	—	—	—
	Market Hall	—	—	—
	Ladywood	1	—	1
	Total Central Wards	9	196	205
Middle Ring.	Lozells	6	—	6
	Aston	17	—	17
	Washwood Heath	555	1,017	1,572
	Saltley	160	2,457	2,617
	Small Heath	126	1,235	1,361
	Sparkbrook	2	—	2
	Balsall Heath	9	—	9
	Edgbaston	511	—	511
	Rotton Park	100	—	100
	All Saints'	20	—	20
	Total Middle Ring	1,506	4,709	6,215
Outer Ring.	Soho	127	—	127
	Sandwell	384	277	661
	Handsworth	653	110	763
	Perry Barr	98	620	718
	Erdington North	1,085	4,673	5,758
	Erdington South	464	1,681	2,145
	Yardley	735	2,491	3,226
	Acocks Green	1,197	5,248	6,445
	Sparkhill	2,165	2,783	4,948
	Moseley and King's Heath ...	1,023	1,466	2,489
	Selly Oak	635	—	635
	King's Norton	312	560	872
	Northfield	1,579	990	2,569
	Harborne	774	387	1,161
	Total Outer Ring	11,231	21,286	32,517
	Grand Total	12,746	26,191	38,937

The following table indicates the degree of activity in new housing since 1901 :—

	Average Number of New Houses erected.	Average New Houses per 100,000 of population.
1901-05	3180	410
1906-10	2810	345
1911-15	1183	137
1916-20	335	37
1921-25	2589	275
1926	6934	722
1927	6452	665
1928	4992	511
1929	6815	695

Overcrowding.

The rapid building of houses during the past few years has materially reduced the amount of overcrowding in the city, and it seems possible that conditions to-day are no worse than they were at the outbreak of the war. Nevertheless, cases are continually coming to the notice of the Public Health Department, and last year 290 such cases were referred to the Estates Department in the hope that a Corporation house might be secured. In 91 of these cases some additional accommodation was needed because there was tuberculosis in the house, while in 11 others the application was made because the occupants were apparently suffering in health.

VITAL STATISTICS FOR HOUSING ESTATES.

With the co-operation of Mr. Wallace Smith, the General Manager, information has been obtained which allows calculation of the birth-rate and death-rate for the population living in the larger Corporation Estates. The estates comprised in the enquiry are as follows :—

Acock's Green.
Alum Rock.
Billesley.
Erdington.
Hall Green.
King's Heath.
Northfield.
South Yardley.
Tyseley.
Ward End.

At the middle of 1929 these estates contained about 23,000 houses with an estimated population of 103,000. They therefore had a population equal to that of a town of considerable size, such as Reading or Northampton.

The births and deaths on these estates have been carefully collated and the figures obtained are of a very satisfactory character. They are as follows :—

Births, 2,113. Birth-rate, 20.5 per 1,000.
Deaths, 768. Death-rate, 7.5 ,, ,,
Infant Deaths, 152. Infant Mortality, 72 per 1,000.

In considering these figures it should be borne in mind that the age distribution of the population is likely to be one which would naturally result in a high birth-rate and a low death-rate. Even when this is taken into account, however, a death-rate of 7.5 is notably low. Moreover, no such qualification is necessary as regards the infant mortality rate which would not be affected by the age constitution of the population, and in this case the rate is only 72 per 1,000, while that of the city as a whole was 79 and that of the Central Wards, from which many of the tenants of the Corporation houses come, was 106. If the infant mortality in the Central Wards had been as low as that in the Housing Estates, there would have been 375 infant deaths in them last year instead of the 544 which actually occurred.

In the statement below the infant mortality rates are given for some of the principal causes of infant mortality both on the Housing Estates and in the City as a whole.

	Housing Estates.	Whole City.
Infectious Diseases	3.8	5.2
Bronchitis and Pneumonia	10.4	15.7
Diarrhoea and Enteritis	8.5	12.1
Premature Birth, Congenital Debility, etc. ...	40.2	35.4

In the case of prematurity and Congenital debility, the infant mortality rate is rather higher in the Housing Estates than in the city as a whole. This bears out previous experience in Birmingham which has indicated that the mortality from this cause is not directly related to bad

social conditions. On the other hand the prevalence of infectious diseases, respiratory diseases and diarrhoeal diseases is closely connected with the type of environment, and the effect of the good surroundings in the Housing Estates is clearly seen in the low rates set out above.

The death-rate (all ages) from pulmonary tuberculosis in the Housing Estates was .66 per 1,000 against .94 for the City as a whole. Pulmonary Tuberculosis is very fatal in the middle years of life and might have been expected to cause an unusually large mortality in the Housing Estates where there must be a large proportion of young and middle-aged adults. Yet the actual death-rate as stated above was much lower than in the City as a whole. It has, of course, to be remembered that tuberculosis often hits the wage-earner and that tuberculous households may thus become less able than before to pay rent such as those of the Corporation houses. Some degree of natural selection and elimination of the tuberculous from the Housing Estates may therefore arise through this factor; so that deductions from the death-rate from tuberculosis must be made with some caution.

HOUSING STATISTICS FOR 1929.

Number of new houses erected during the year 1929—	
(a) Total	6,815
(b) With State assistance under the Housing Acts—	
(1) By the Local Authority	4,359
(2) By other bodies or persons	1,995

1. Unfit Dwelling Houses.

Inspection—(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	23,639*
(2) Number of dwelling-houses (included under sub-heading 1) which were inspected and recorded under the Housing (Consolidated) Regulations, 1925	9,927
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	23
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation	20,308

2. Remedy of Defects without Service of Formal Notices.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their Officers	8,988*

3. Action under Statutory Powers.

A. Proceedings under Section 3 of the Housing Act, 1925.	
(1) Number of dwelling-houses in respect of which notices were served requiring repairs	196
(2) Number of dwelling-houses which were rendered fit after service of formal notices—	
(a) By owners	106
(b) By Local Authority in default of owners	—
(3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declaration by owners of intention to close	5
B. Proceedings under Public Health Acts.	
(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	4,922†
(2) Number of dwelling-houses in which defects were remedied after service of formal notices—	
(a) By owners	2,445†
(b) By Local Authority in default of owners	—
C. Proceedings under Sections 11, 14 and 15 of the Housing Act, 1925.	
(1) Number of representations made with a view to the making of Closing Orders	2
(2) Number of dwelling-houses in respect of which Closing Orders were made	30
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	8
(4) Number of dwelling-houses in respect of which Demolition Orders were made	1
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders	1

* These figures show substantial variation from those given in previous reports, by reason of a ruling obtained from the Ministry of Health as to the interpretation intended to be placed on the phrases in this table. The data given refer now strictly to the dwelling houses themselves and not to court yards, W.C.'s, etc., attached to such houses. The diminished figures do not however represent a diminution in work done. There has in fact been a considerable increase.

† These figures, and particularly the second, vary considerably from those in previous reports by reason of an altered system of recording. The second figure in particular does not for the present year give a complete picture of the work done, owing to the impracticability of carrying over into the new record system particulars of houses in which defects have been remedied under the previous method of recording. The actual amount of work successfully carried out was at least as great in 1929 as in previous years. Particulars of the defects for which notices were served will be found on page 24.

V. INSPECTION AND SUPERVISION OF FOOD.

THE MILK SUPPLY.

Very little change has occurred since 1928 in regard to the area from which the supply of milk is derived, the great majority coming from farms situate outside the City, and within an area having as its radius a distance of 50 miles from the centre of Birmingham.

Bacteriological Examination of Milk.

There were 158 samples of raw milk submitted for bacteriological examination, and analysis of the results shews a considerable improvement since 1928 in the bacteriological standard for this type of milk.

This increased purity is reflected also in the standard of pasteurised milk, for in this type a 45% reduction in the bacterial counts has occurred when compared with similar samples taken in 1928.

Registration and Inspection of Milkshops.

A synopsis of work done by the Sanitary Inspectors in connection with the milk supply is given below:—

No. of visits to	
Milkshops	4061
Wholesale Purveyors	156
Retail Purveyors	511
Railway Stations	4
Other visits	230
Churns examined at Stations	73
Vessels examined at Milkshops	8244
Notices served:—	
To limewash premises	16
For Sanitary Defects	59
For other defects	20

Milk (Special Designations) Order, 1923.

Below is given the number of dealers in the City licensed under the above order. During the past year all graded milks have been submitted to regular bacteriological examination, and have in all cases come within the standard laid down in the above Order.

Producers of Certified Milk	1
Dealers in Certified Milk	8
Producers of " Grade A " Milk	3
Dealers in " Grade A " Milk	25
Dealers in " Grade A " (Tuberculin Tested) Milk	14
Dealers in Pasteurised Milk	50
Supplementary Licences in Pasteurised Milk	4
Dealers in " Grade A " Pasteurised Milk	1
Producers of Pasteurised Milk	10

Milk and Dairies Order, 1926.

All matters referable to dairies come under the control of this Dept., matters relating to cows and cowsheds coming under the supervision of the Veterinary Dept.

The Order continues to be complied with in a satisfactory manner, and the standard of cleanliness in the dairies remains good.

No prosecutions were undertaken during the year.

INSPECTION OF COWS AND COWSHEDS IN THE CITY.

(Report by Mr. Brennan DeVine, F.R.C.V.S., Veterinary Superintendent).

At 31st December, 1929, there were 106 Dairy Farms on the register, and at these farms there were 221 cowsheds housing 1,474 milking cows. Your Veterinary Inspectors paid 2,843 visits to sheds.

Cows. The high standard of health and cleanliness of the cows found in former years was maintained during 1929.

There were five cases during the year in which we had to specially draw the attention of the owner to improving the cleanliness of the cows. In 34 cases we found cows to be affected with acute catarrhal mastitis. The milk from these affected cows was prohibited from being sold for human consumption and in each case the animals were kept isolated from the rest of the herd.

Eighteen cows were found to be affected with tuberculosis in a condition to be dealt with under the Tuberculosis Order. These animals were all slaughtered and post mortem examination showed that

8 were affected with tuberculosis of the udder,
9 with advanced tuberculosis with emaciation, and
1 with chronic cough and generalised tuberculosis but not with emaciation.

Grade A Milk. This was produced from the following farms:—

E. Burchell, Four Dwellings Farm, Quinton.
F. W. Lloyd, Hill Top Farm, Handsworth.
P. D. Bickle, Hawkesley Hall Farm, King's Norton.

Cowsheds. The cowsheds in the city are inspected with a view to maintaining adequate lighting, ventilation, good drainage and water supply. In seven cases special notice was sent to cow-keepers requesting them to have their sheds cleansed. In all other cases the sheds were kept in a condition to comply with our requirements.

Five applications were received from persons to be registered as cow-keepers in the city for the sale of milk; in each case, after the sheds had been suitably altered, the applications were acceded to. In seven cases Dairymen have discontinued keeping cows and their names have been removed from the register.

In the added area of Perry Barr, four additional sheds which were not completed at 31st December, 1928, have now been finished and placed on the register.

TUBERCULOSIS AND THE MILK SUPPLY.

(Report by Mr. DeVine).

Detection of Tuberculosis.

During the year 125 samples of milk were taken from city dairies. Of these 117 proved free, and 8, or 6.4 per cent. were found to contain living tubercle bacilli. Subsequently on visiting the farms 8 cows with tuberculosis of the udder were discovered. These are included in the return above and were slaughtered under the Tuberculosis Order.

There were 958 mixed samples of milk taken from supplies sent in from outside sources as follows:—

Source.	Mixed Samples.	Result of Exam. Free.	Result of Exam. Infected.	Percentage Infected.
Gloucestershire	73	72	1	1.4
Shropshire	117	111	6	5.1
Staffordshire	230	207	23	10.0
Warwickshire	387	361	26	6.7
Worcestershire	136	130	6	4.4
Various	15	13	2	13.3
	958	894	64	6.7

Following the discovery of the 64 samples of infected milk the concerned County Council was notified in each case and one of your Veterinary Inspectors visited the farm in company with a Veterinary Inspector of the County Council. The herds, which included 1,653 cows, were examined and 56 cows affected with tuberculosis of the udder and giving milk containing living tubercle bacilli were discovered and subsequently slaughtered by the authority of the County Council. These 56 cows were found on 47 farms. On 17 other farms the cow responsible for giving tuberculous milk was not found, but in 10 cases it was ascertained that animals had been slaughtered under the Tuberculosis Order after the sample had been taken and previous to the visit of the Veterinary Inspector, thus accounting for 10 more cases of tuberculous animals being

removed from the herds. In seven other cases animals had gone " dry " and been sold out for slaughter, but had not been dealt with under the Tuberculosis Order.

In all cases where the offending cow was not detected, that is to say, where the animal had been removed from the herd previous to the visit of the Veterinary Inspector, further bulk samples were taken as controls, and in each case the bulk sample was found to be free from tubercle bacilli, thus proving that the offending cow had not been kept in the herd.

The following table shows the number of milk samples taken since 1920 and the percentage infected :—

Year.	Samples Taken.	Samples Infected.	Percentage Infected.
1920	68	5	9.7
1921	184	9	4.9
1922	228	8	3.5
1923	258	19	7.3
1924	303	26	8.5
1925	622	46	7.4
1926	811	71	8.7
1927	835	60	7.2.
1928	974	91	9.3
1929	958	64	6.7
	5,241	399	7.6

From this it will be seen that the average percentage of infected milks coming into Birmingham is 7.6 per cent. for the years 1920 to 1929 inclusive. The Tuberculosis Order was reintroduced in 1925 with a view to the reduction of Tuberculosis amongst Dairy Cattle in this country, and the Milk and Dairies Order came into force in 1926 with similar objects.

It would appear that it has no material effect (so far as the Birmingham supplies are concerned) in the reduction of the percentage of tuberculous milk coming into the city from outside sources. There is no doubt that when an animal is in such an advanced stage that it may be dealt with under the Tuberculosis Order it is then too late to expect to remove the danger of tubercular infection in a herd, as the animal with advanced tuberculosis, or a chronic cough, will infect its neighbours in the shed long before it is clinically affected to such an extent that it may be dealt with under the Tuberculosis Order.

Eradication of Tuberculosis.

Under the scheme for the eradication of tuberculosis from herds supplying milk to Birmingham, the Corporation send their Veterinary Inspectors to carry out the testing of herds for farmers who desire to be included in this scheme.

Nineteen herds, comprising 663 animals, were continuing in the Scheme on 31st December. From 9 of these herds Certified or Grade A Tuberculin Tested Milk is supplied to the city :—

No.	Approx. No. in Herd.	Certified and Grade A (T.T.) Milk.	Breeding Herds.	Mixed Herds.	City Dairies.	Outside Dairies.
1 ...	100	1	1	—	1	—
2 ...	44	—	—	1	1	—
3 ...	25	1	1	—	—	1
4 ...	10	—	—	1	—	1
5 ...	4	—	1	—	1	—
6 ...	40	1	1	—	—	1
7 ...	8	—	1	—	—	1
8 ...	30	1	—	1	—	1
9 ...	4	—	1	—	—	1
10 ...	25	—	—	1	1	—
11 ...	30	1	1	—	—	1
12 ...	100	—	—	1	1	—
13 ...	40	—	—	1	—	1
14 ...	20	1	1	—	—	1
15 ...	67	—	1	—	—	1
16 ...	29	1	—	1	—	1
17 ...	15	—	1	—	—	1
18 ...	28	1	1	—	—	1
19 ...	44	1	1	—	—	1
19 ...	663	9	12	7	5	14

Two herds which had been included in the Scheme were discontinued; one herd at Norgrove, near Redditch, because the owner discontinued sending his milk to the city area, and the other herd at Winson Green Mental Hospital.

In two other cases where the owners applied to come into the Scheme we tested their herds of 32 and 57 cows respectively, but as 47 and 44 per cent. were found to be reactors, the owners decided not to come into the scheme.

Herds Tested During 1929.

The testing of herds which come under the Scheme is carried out half-yearly and the following return gives the number of animals tested during the year:—

		Tested.	Passed.	Failed.	Doubtful	Date of entering Scheme.
1	...	311	305	6	—	October 24th, 1907.
2	...	120	120	—	—	October 3rd, 1908.
3	...	49	49	—	—	September 23rd, 1913.
4	...	28	20	8	—	November 21st, 1922.
5	...	11	8	3	—	April 14th, 1916.
6	...	121	106	15	—	June 8th, 1920.
7	...	16	14	1	1	May 26th, 1928.
8	...	58	57	1	—	November 22nd, 1907.
9	...	7	7	—	—	January 6th, 1908.
10	...	69	63	6	—	September 21st, 1921.
11	...	58	56	2	—	October 9th, 1913.
12	...	309	305	4	—	October 3rd, 1908.
13	...	93	87	5	1	June 6th, 1913.
14	...	57	50	6	1	October 4th, 1924.
15	...	172	154	16	2	November 28th, 1918.
16	...	80	69	10	1	October 9th, 1928.
17	...	29	20	9	—	May 13th, 1929.
18	...	29	25	4	—	September 26th, 1929.
19	...	133	99	34	—	February 7th, 1929.

Herds tested but now discontinued:—

20	...	20	16	4	—
21	...	70	59	11	—

Herds tested for the first time but not brought into the Scheme:—

22	...	57	32	20	5
23	...	32	17	15	—
		1,929	1,738	180	11
		%	90.1	9 3	.6

Summary.

Dairy Farms in the City	106
Milking Cows	1,474
Visits to Sheds	2,843
Cows in City Dairies affected with Mastitis	34
Cows in City Dairies affected with Tuberculosis	18
Samples of Mixed Milk taken	1,083
Samples of Mixed Milk taken found to be infected	72
Visits to Outside Farms	73
Herds tested	23
Cows tested	1,929
Cows which passed the test	1,738
Cows which failed to pass the test	191

INSPECTION OF MEAT AND OTHER FOODS.

(Report by Mr. DeVine).

Slaughterhouses, Etc.

In the Public Abattoir there are three Veterinary Inspectors and two Lay Inspectors constantly employed. The Public Abattoir is open for slaughter from 7 a.m. until 9 p.m., and there are always Inspectors on duty during these hours.

During the year the following animals were slaughtered at the City Meat Market:—

	Beasts.	Calves.	Sheep and Lambs.	Pigs.	Total.
1929 ...	49,283	71,733	233,631	60,325	414,972

Besides the slaughtering which has taken place at the Public Abattoir, there is a Public Slaughter Hall in connection with Montague Street Market, which is principally used for the slaughter of pigs and casualty slaughtering, and during the year the following animals were slaughtered there:—

	Beasts.	Calves.	Sheep and Lambs.	Pigs.	Total.
1929 ...	20	2	433	2,707	3,162

There are 98 Private Slaughterhouses, 50 of which are Registered and 48 Annually Licensed, and also 2 Knackeries. These Slaughterhouses are visited regularly by the District Inspectors, there being one Veterinary Inspector and five Food Inspectors employed in the various districts in the city.

The following return shows the numbers of animals slaughtered in Private Slaughterhouses in the various districts:—

District.	Beasts.	Calves.	Sheep.	Pigs.	Total.
Central ...	697	223	7,225	189,157	197,302
No. 1 ...	908	281	7,965	808	9,962
No. 2 ...	1,185	835	7,484	11,092	20,596
No. 3 ...	2,471	1,521	12,022	5,938	21,952
No. 4 ...	1,176	705	8,998	2,210	13,089
No. 5 ...	1,782	903	15,680	7,222	25,587
Total ...	8,219	4,468	59,374	216,427	288,488

The following gives the number of Irish Pigs received in Birmingham on Licence during the year:—

Licensed to Montague Street Market	12,178
Licensed direct to Bacon Factories	50,976
	63,154

Note.—The pigs which were licensed to Montague Street were distributed to various slaughterhouses.

Changes of Occupancy. Notices of change of occupancy of the two undermentioned private slaughterhouses were received during the year. These were inspected and found to be in a satisfactory sanitary and hygienic condition. The Markets and Fairs Committee in each case confirmed the change:—

183, Dudley Road.
294, Wheeler Street.

Imported Meat.

During the year the following imported meat was sold in Birmingham:—

	Tons.	Cwts.	Qrs.
Beef	10,756	19	0
Mutton, etc. ...	11,170	1	0
Offal	744	6	1
	22,671	6	1

Caseous Lymphadenitis. During the year we received notifications from the Port Authorities of Imported Mutton being sent to Birmingham. Following these notifications we controlled this mutton until examined by our Inspectors.

Altogether 99 consignments, consisting of 24,747 carcases, were examined and 160 carcases, weighing approximately 3 tons 10 cwts., were found to be affected with Caseous Lymphadenitis and sent to Montague Street for destruction.

Grading of Home-Killed Beef.

Experimentally, but on a commercial scale, graded and marked home-killed beef came on sale this autumn in London and Birmingham. There are three quality grades of home-killed beef. "Select," "Prime" and "Good."

"Select" grade carcases are from young specially-fed animals, producing beef of particular tenderness.

"Prime" grade beef is also of exceptional quality but will provide rather larger joints.

"Good" grade beef is likely to be slightly leaner than either of the other two grades and on that account will probably be popular.

The National Mark on graded carcases takes the form of a ribbon stamp, drawn down the whole of the side, the colouring matter used being of vegetable origin, flavourless and entirely harmless. The mark shows on all the principal joints. It bears the grade name "Select," "Prime" or "Good," the words "Home Killed" and a silhouette map of England and Wales.

Meat and Other Foods Surrendered as Unfit for Human Consumption.

No. of Surrenders.	Class of Foodstuffs.	Weight. Tons.	Cwts.	Qrs.	Lbs.
10,775	Meat	477	8	3	26
581	Fish	65	15	0	14
1,005	Poultry, Game, etc.	17	7	1	8
328	Fruit and Vegetables	321	13	1	27
115	Miscellaneous	5	3	1	16
12,804		887	8	1	7

Summary of Meat and Organs Surrendered.

	Beasts.	Calves.	Sheep and Lambs.	Pigs.	Total.
Lungs—					
Tuberculosis	2,871	58	—	3,957	6,886
Other Conditions	1,751	356	772	1,097	3,976
Hearts—					
Other Conditions	1,997	392	758	3,881	7,028
Bowels—					
Tuberculosis	2,169	36	—	3,419	5,624
Other Conditions	602	263	470	535	1,870
Stomachs—					
Tuberculosis	2,154	36	—	3,463	5,653
Other Conditions	597	263	470	529	1,859
Spleens—					
Tuberculosis	2,147	58	—	3,954	6,159
Other Conditions	635	351	752	983	2,721
Livers—					
Tuberculosis	2,331	59	—	3,954	6,344
Other Conditions	10,789	365	6,461	1,461	19,076
Kidneys—					
Tuberculosis	1,768	65	—	383	2,216
Other Conditions	945	616	2,402	663	4,626
Heads—					
Tuberculosis	1,931	44	—	4,414	6,389
Other Conditions	671	294	468	226	1,659
Fore Quarters—					
Tuberculosis	42	1	—	36	79
Other Conditions	30	5	8	10	53
Hind Quarters—					
Tuberculosis	54	—	—	1	55
Other Conditions	55	—	4	16	75

Carcases—								
Tuberculosis	...	...	402	33	—	167	602	
Other Conditions	...	...	498	342	1,614	431	2,885	
Miscellaneous—			cwts.	cwts.	cwts.	cwts.	t. c.	q.
Tuberculosis	...	...	200½	—	—	99¼	14 19	3
Other Conditions	...	...	66½	1¾	13	26¼	5 7	2
Frozen and Chilled—								
Other Conditions	...	...	29	—	80½	—	5 9	2

172 of the Carcases of Calves were surrendered for immaturity.

Public Health (Meat) Regulations.

The work under these Regulations, which have been in force since 1925, is carried out by the Food Inspectors of the Veterinary Department working for the Markets and Fairs Committee.

The section of these Regulations relating to Slaughterhouses and slaughtering requires:—

(1) That notification shall be given with respect to the slaughtering of all animals, or, in the case of casualties, notice must be given as soon as possible whether before or after the slaughtering takes place.

(2) Notification by the owner or slaughterman of any disease found at the time of slaughter.

(3) No gut-scraping, tripe-cleaning, or preparation of foodstuffs shall be carried on in any slaughterhouse other than is involved in the slaughter and the dressing of carcases.

A person selling meat or exposing or offering meat for sale from any stall shall cause such stall to be suitably covered to prevent filth, or other contaminating substances being splashed or blown from the ground upon any meat on the stall, and shall guard against the contamination of the meat by flies. Meat shall not be placed on, or within 18 inches of the ground or floor and all utensils shall be kept in a cleanly condition.

With regard to shops, stores, etc., these Regulations provide:—

(1) Meat shall not be hung outside the premises.

(2) Meat must be protected from contamination by flies and be so placed as to prevent mud, filth, or other contaminating substances being splashed or blown thereon.

(3) All trimmings, refuse and rubbish, to be placed in properly covered receptacles.

The section dealing with the transport and handling requires that vehicles used for the transport of meat shall be kept clean and that if the vehicles are open at the back or sides, the meat must be adequately protected by means of a clean cloth. Further no live animal is permitted to be conveyed in the vehicle at the same time as meat.

Any person engaged in the handling or transport of meat shall take reasonable precautions to prevent the exposure of the meat to contamination.

Prosecutions. Three Prosecutions were instituted against butchers for exposing meat for sale outside the shop. In two cases a Fine of 20s. (or 11 days) was imposed, and in the other case £5 (or 21 days).

Montague Street Pig Market.

During the year 96,208 fat pigs (including 12,178 Imported Pigs) passed through Montague Street Pig Market, and were licensed to Bacon Factories and Slaughterhouses, as compared with 113,277 pigs in the previous year. The reduction is due to the shortage of pigs in the country which has been felt by all the Pig Markets and does not apply specially to Birmingham.

New Bye-Laws.

Owing to the congestion caused by the driving of animals through the streets and their interfering with the progress of vehicles, including trams and buses, it has been found necessary to make special Regulations, and new Bye-laws were passed by the Council on the 15th of October.

In addition to these Bye-laws a further set of Bye-laws were passed by the Council on the 15th of October, which prescribed certain streets as the only streets in which the leading or driving of cattle to the City Meat Market in Bradford Street or to the Public Market in Montague Street, shall be permitted between the hours of 9 in the morning and 9 in the evening.

Registered Food Preparation Premises and Shops.

We began registration of Food Preparation premises in 1922 under Section 33 of the Birmingham Corporation Act, 1914, and in that year 287 premises were registered. At the end of 1929, 390 Food Preparation premises were registered as follows:—

Cooked Meat, etc., Manufacturers	236
Sausage and Pork Pie Manufacturers	96
Tripe Dressers	52
Ham Manufacturers	5
Jam Manufacturers	1
Total	390

In addition to the visits paid to Slaughterhouses and Food Preparation premises, the following shops, where food is sold, were regularly visited:—

Beef and Pork Butchers	917
Greengrocers	1,006
Grocers	1,029
Hucksters	3,064
Fishmongers	25
Fried Fish	562
Total	6,603

Visits of inspection were paid by the Inspectors as follows:—

	1929.	1928.
Slaughterhouses	7,009	8,478
Butchers	28,308	28,233
Fishmongers	7,435	6,834
Greengrocers	9,851	9,023
Grocers	3,193	1,976
Hucksters	4,441	2,816
Fish Friers	2,733	2,570
Ham and Bacon Curers	1,634	991
Street Hawkers	17,315	23,185
Cold Stores	11,675	6,431
Horseflesh Shops	48	10
Food Preparation Premises	6,534	7,607
	100,176	98,154
Visits by request included in the above	1,437	1,457

Shell Fish.

The following is a summary showing the samples taken during the year, and submitted for bacteriological examination, of shell fish offered for sale on our Market.

Number of Samples		Origin English.	Irish.	Other Sources.
13	Oysters	8	1	4
59	Mussels	34	21	4
1	Cockles	1	—	—
5	Periwinkles	2	3	—
78		45	25	8

As a result of the bacteriological examination, mussels from Drogheda, Oranmore Bay, Killorglin, West Appledore, Glasson Dock, and certain merchants in Liverpool, and oysters from Rotterdam, were prohibited from being offered for sale on our Markets.

Salmon and Freshwater Fisheries Act, 1923.

Any notices of Close Seasons dealing with Salmon and other Freshwater Fish received from the Fishmongers' Company, are distributed among the Wholesale Fish Merchants on our markets, and any contraventions of these Orders are reported to the Fishmongers' Company.

Merchandise Marks Act, 1926.

Two Orders (Nos. 3 and 5) relating to imported goods have been made under the above Act.

Order No. 3 provides for the marking, with an indication of origin, of imported Honey and fresh Apples.

Order No. 5 provides for the marking of imported goods of the following classes or descriptions with an indication of origin:—

(1) Currants, sultanas and raisins;
(2) Eggs in shell;
(3) Dried eggs; and
(4) Oat products.

Agricultural Produce (Grading and Marking) Act, 1928.

The Agricultural Produce (Grading and Marking) (Eggs) Regulations, 1928, which came into force on the 28th February, 1929, were made under the above Act. They provide for grade designation and grade designation marks for eggs produced in England and Wales, and for the marking of eggs which have been subjected to any process of preservation.

Section 4 of the above Act requires that any premises used or intended to be used by way of trade or for purposes of gain for the cold storage of eggs may be registered.

Application was received from three firms and in the following cases Certificates of Registration were granted:—

E. Brain, Uplands Farm, Handsworth.
The Lightfoot Refrigeration Co. Ltd., Digbeth.

Miscellaneous.

Sugar Sweepings. 9 consignments, consisting of 249 bags, of sugar sweepings were forwarded to Birmingham from the Port of London. These were controlled by us until they had been submitted to a special refining and filtration process when they were examined and passed as fit for human consumption.

Sale of Food Order, 1921 (Part 3). Labelling of Imported Meat. Owing to the tendency existing in the City to disregard the provision laid down by Part 3 of the Sale of Food Order, 1921, the attention of those affected was re-directed to the provisions contained therein by means of pamphlets which were distributed by the District Inspectors.

Since the distribution of these pamphlets there has been a marked improvement in the labelling of imported produce.

Residual Values. Since 1st June, 1926, compensation at the rate of 3s. per cwt. has been paid to owners in respect of carcases and parts of carcases of pigs which are surrendered as unfit for human food. On May 17th, 1929, it was decided by the Markets and Fairs Committee to pay compensation in respect of carcases and parts of carcases of all animals. During the year a total sum of £502 9s. 3d. has been paid.

Certificates. Consignments of animal casings sent to the U.S.A. and the Continent are required to be accompanied by a Veterinary Certificate. In addition, Hams which are exported to the Continent are also required to be accompanied by a Veterinary Certificate to comply with the Regulations of foreign countries.

During the year 32 Certificates were issued for Hams, etc., and 29 in respect of animal casings, 8 of the latter consignments being for America.

VI. PREVALENCE OF, AND CONTROL OVER, INFECTIOUS DISEASES.

GENERAL.

The chief features of the year in regard to infectious diseases were the widespread and severe epidemic of influenza in the early Spring; an increased prevalence of scarlet fever; a more severe type of diphtheria; an increased mortality from measles; and a comparatively small and circumscribed outbreak of typhoid fever occurring in December, and continuing into the early part of 1930. Reference is made to each of these in subsequent pages.

The figures for 1929 are compared with the decennial averages in the statement below.

Disease.	Deaths in 1929.	Average 1919-28.	Above or below the average.
Enteric Fever	4	4	—
Smallpox	0	0	—
Measles	196	119	+ 77
Scarlet Fever	9	34	— 25
Whooping Cough	123	150	— 27
Diphtheria	86	112	— 26
Pulmonary Tuberculosis	918	898	+ 20
Other Forms of Tuberculosis	148	144	+ 4
Influenza	1,066	386	+680

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

Disease.	Cases in 1929.	Average 1919-28.	Above or below the average.
Enteric Fever	31	31	—
Smallpox	2	6	— 4
Scarlet Fever	2413	2638	— 225
Diphtheria	1611	1588	+ 23
Erysipelas	627	399	+ 228
Puerperal Fever	94	128	— 34
Puerperal Pyrexia	118	Only recently notifiable.	
Ophthalmia Neonatorum	522	415	+ 107
Pulmonary Tuberculosis	1270	1813	— 543
Other Forms of Tuberculosis	268	317	— 49
Acute Primary or Influenzal Pneumonia	4224	2083	+2141
Cerebro-Spinal Fever	15	12	+ 3
Acute Poliomyelitis	6	17	— 11
Polioencephalitis	3	2	+ 1
Encephalitis Lethargica	27	65	— 38
Malaria	5	68	— 63
Dysentery	19	12	+ 7

The elementary school teachers reported the following cases:—

	1929.	1928.	1927.
Measles	9,764	5,030	9,032
German Measles	642	325	186
Whooping Cough	3,347	6,463	2,496
Chicken Pox	5,208	5,555	5,191
Mumps	5,440	5,014	4,465

For particulars of the visits paid to these cases see Health Visitors' Work, page 20.

ENTERIC FEVER.

During the year 31 cases of enteric fever occurred in the City; 24 of these being due to infection with bacillus typhosus, the remaining infections, 7 in number, being caused by B. paratyphosus B.

This number of cases is slightly in excess of that experienced in some recent years, but as will be explained later the increase was due to an outbreak of the disease in late December which accounted for 13 cases of the total. Four deaths from typhoid fever occurred during the year, giving a case mortality of 12.9 per cent.

From the following table it will be seen that this case mortality compares favourably with those for past years.

Enteric Fever.

	Number of Cases.	Case rate per 1,000.	Number of Deaths.	Death-rate per 1,000.	Case mortality per cent.
1901-5 (Average)	544	.70	91	.12	16.7
1906-10 ...	242	.30	51	.06	21.1
1911-15 ...	90	.11	22	.03	24.4
1916-20 ...	22	.02	5	.01	22.7
1921-25 ...	30	.03	4	.00	13.3
1919 ...	34	.04	9	.01	26.5
1920 ...	12	.01	—	—	Nil
1921 ...	26	.03	5	.01	19.2
1922 ...	11	.01	3	.00	27.3
1923 ...	32	.03	4	.00	12.5
1924 ...	48	.05	5	.01	10.4
1925 ...	31	.03	4	.00	12.9
1926 ...	52	.05	3	.00	5.8
1927 ...	40	.04	4	.00	10.0
1928 ...	20	.02	3	.00	15.0
1929 ...	31	.03	4	.00	12.9

Outbreak of Enteric Fever at Bordesley Green.

It is convenient to include a report on a series of cases of enteric fever which occurred in the Bordesley Green district in December, 1929, and January, 1930, by reason of the fact that nearly all, if not all, received their infection during December. The outbreak included 38 known cases, in 19 households.

Commencement of Outbreak. On December 23rd, 1929, four notifications of typhoid fever were received in respect of members of a household in the Yardley Ward near the boundary of the Small Heath Ward. Following on this further notifications continued to be received up to February 7th, 1930, the following list setting out particulars of the whole of the 38 notifications related to the Small Heath and Yardley wards. All except 6 were situated in a small portion of Bordesley Green, around the junction between the Small Heath, Saltley, and St. Bartholomew's wards; of the 6 exceptions, all were in one household in Yardley, near the Small Heath ward boundary. Apart from these cases occurring in an area limited as above, 3 cases were notified for the remainder of the City between December 23rd and February 7th, this corresponding with the usual rate of incidence for the City as a whole.

Notification of Cases.		Households Involved.		Ages of Patients.		Dates of Onset.	
Date of notification.	Number of cases notified on each day.	Newly invaded households.	Households already reported through previous notification.	In newly invaded households.	In households already reported.	Cases apparently primary.	Cases probably secondary.
Dec. 23	4	1	–	13, 12, 8, 6.	–	Dec. 12.	
,, 26	5	1	1	32, 5, 10, 9.	38*	Dec. 12.	
,, 29	2	1	–	12, 8.	–	Dec. 13.	
,, 30	2	–	1	—	6, 10.	Dec. 13.	
Jan. 1	2	1	1	8.	7*	Dec. 12, Dec. 13.	
,, 4	1	1	–	24.	–	Dec. 12-14.	
,, 7	7	5	–	31, 44, 20, 19, 21, 16, 8.	–	Dec. 13 (1) ; Dec. 12-16 (2) ; Dec. 26 (1) ; Dec. 14-18 (1) ; Dec. 16 (1).	Dec. 28 (1).
,, 9	2	–	1	—	43, 11(†)	—	Dec. 22, Jan. 1
,, 10	1	1	–	26.	–	Dec. 12-14.	
,, 11	2	2	–	57, 25.	–	Dec. 12-16 ; Dec. 23.	
,, 14	1	1	–	42.	–	Dec. 12.	
,, 17	1	–	1	—	9**	Dec. 12.	
,, 18	1	1	–	56.	–	Jan. 1.	
,, 20	2	1	1	61.	52 (††)	Jan. 7.	Jan. 15.
,, 22	1	1	–	55.	–	Jan. 1.	
,, 24	2	–	1	—	13*** 16***	Dec. 12 (2).	
,, 30	1	1	–	47.	–	Dec. 12.	
Feb. 7	1	1	–	57.	–	Dec. 12.	
Totals	38	19					

* Case from household where others had been notified on Dec. 23rd.
(†) ,, ,, ,, ,, another ,, ,, ,, Jan. 7th.
** ,, ,, ,, ,, ,, ,, ,, ,, Jan. 14th.
(††) ,, ,, ,, ,, ,, ,, ,, ,, Jan. 7th.
*** ,, ,, ,, ,, ,, ,, ,, ,, Jan 22nd.

Three cases have been omitted from the list by reason of incorrect diagnosis; the remainder, as set out above, have all been cases, clinically and serologically, of typhoid fever.

General Considerations. The series of notified cases, considered in conjunction with their situation, suggests certain provisional deductions:—

1. The cases showed a remarkably localised distribution, only one group of 6, in one household, lying somewhat separated from the main group and to the east of them. The remainder were in streets in close proximity to each other. A localised source of infection, through agencies not reaching other portions of the City or not conveying infection in a similar concentration, may reasonably be deduced.

2. The age distribution involves all ages; there was no selection of sexes. The age distribution may be summarised as follows:—

Ages.	Number.
0—5	1
6—10	11
11—20	9
21—30	4
31—40	3
41—50	4
51—60	5
61—70	1

3. The fact that the younger children, between the age of 5 and 10, were freely involved as well as adolescents and adults makes it *prima facie* unlikely that infection occurred through food stuffs such as shell fish which might otherwise come under suspicion.

On the other hand it would be consistent with infection through a raw milk, or through a milk contaminated after pasteurisation, for the absence of cases in children under 5 years, and the comparative frequency among older children, would in that event correspond with the greater likelihood of giving the younger group warm, previously boiled and hence sterilised milk. The age distribution as between younger and older children might be almost equally consistent with an infection through water, as the older child and the adult is likely to drink more unboiled water than the young child, the latter receiving mainly boiled milk.

Sources of Infection.

1. *Tradesmen.* Close scrutiny of the shops which served the 19 households with vegetables, fruit, fish, shellfish, groceries, meat, milk, cheese, butter, ice cream, potted and preserved meats, pies and pasties, bread, confectionery, etc., showed no supply common to each household in any one of these items.

2. *General Foodstuffs.* Similar enquiry into any article of food out of the following list common to the primary cases gave entirely negative results: loose milk, bottled milk, tinned milk, cream, ice cream, sugar, oxo, tinned fruit, jam, eggs, margarine, lard, dripping, cheese, tinned meat, tinned fish, cereals, bread, cakes, dates, figs, other raw fruit, meat, sausages, pork pies, other pies, sausage roles, a-la-mode beef, "chitterlings," "scratchings," fish, oysters, mussels, winkles, whelks, cockles, shrimps, prawns, crab, lobster, celery, salad cress, water cress, lemonade, jelly cubes and a few other items. No other foodstuff taken by all could be traced. Such articles as bread, butter, sugar, etc., while common to all in the general sense, were derived from a large number of independent sources. Milk is considered more fully below.

3. *Water.* The water supply for the district containing all the cases is sometimes from the Corporation's Welsh supply, at other times filtered water from Whitacre Pumping Station derived from the River Bourne, or possibly a mixture of the two. From December 24th to January 10th, Welsh water alone was supplied in the district. The Welsh supply is of great purity. The Bourne supply as a filtered river water, necessarily requires more supervision; there has, however, been no reason to be other than fully satisfied with the results of the chemical and bacteriological tests to which it is submitted at frequent intervals. Any general infection of either water supply is therefore in the highest degree unlikely; and had such infection involved either supply at a point further back towards the source than the mains passing through the district concerned, it would necessarily have produced a far more widespread outbreak. Circularisation of medical practitioners as to the outbreak did not result in the slightest suggestion that the outbreak was more extensive in area than is here described.

Having set aside the possibility of a general infection of the water supply, it had to be considered whether a local contamination of the water supply, e.g., through a broken pipe, might account for the cases notified, and yet be limited to the area in which these cases occurred. It was found that all the households were on one common system of water mains, except one, the household in Yardley with 6 cases of typhoid fever which was the earliest reported group in the outbreak.

There was no record of a broken water pipe in connection with this area. Particulars were obtained of a water pipe previously found by the Water Department in January to be leaking to a very slight extent, in the near neighbourhood of a surface water sewer itself slightly cracked; both in fact having been damaged by vibration from traffic on the crown of a road bridge. Both water main and sewer of course received prompt repair. Even if it had been possible for material to enter this water pipe against the positive pressure of water within, it is difficult to see why its effect should have been limited to the group of streets involved and why the infection should not have travelled further afield. Moreover, the water in this main did not always travel from west to east to enter the " infected " district. The direction of flow was from time to time reversed, in relation to general questions of pressure and supply, and the infection might be expected to travel as much in one direction as the other, so that the outbreak might have been expected to expand on both sides, and not merely on one side, of this point of leakage. Taking these various features into consideration, it became necessary to look for some other explanation more fully capable of explaining the facts.

4. *Milk.* Enquiry as to the sources of the fresh milk supplied to the 19 households involved gave no suggestion whatever of any common source of supply. Nine different dairies served these households, and no common link could be traced between these, either in personnel, present or past, or in exchange of milk between one dairy and another.

During the course of the enquiry it was ascertained that a case of typhoid fever had occurred during the autumn at a farm in the Meriden Rural District, immediately adjoining Birmingham on its east, acually abutting on the Yardley area in some degree involved in this outbreak; and seeing that the Bordesley Green and Yardley areas seemed to be the natural outlets for sale of milk from this farm, a visit was paid in conjunction with the District Sanitary Inspector, by courtesy of the Medical Officer of Health of the area. It was found that:—

(a) A child aged 7 had been removed from the farm to the local fever hospital with typhoid fever on October 15th, 1929, and had returned to the farm on December 7th.

(b) The milk was sent into Birmingham; the evening raw milk in two churns collected by a large Birmingham dairy firm and converted with other milk into " sterilised " bottled milk, distributed throughout the City; the morning raw milk, in two churns, collected by the same firm and deposited at a small dairy situated in the " infected " district in Bordesley Green, and retailed as loose milk in that district without pasteurisation. A portion of this milk was also transferred to another dairyman who came in from the Meriden Rural District to serve this district, and retailed as loose raw milk by him. This latter dairyman's round included the street in which lived the household in Yardley containing 6 patients, which as already described appears to be on a water supply not identical with that of the rest of the infected households.

It is evident that suspicion must be attached to this milk. Taking the shorter limit of the ordinary incubation period of 7 days, or assuming a still shorter incubation period with a milk infection, the date of return of the child to the farm might coincide with the probable date of infection of the ealiest batches of typhoid cases, though it does in fact suggest an unusually short incubation. Further, the milk was delivered into the " infected " area, and one round passed the one solitary outlying group of cases.

The closest enquiry, however, failed to show that any one of the " infected " households had obtained milk from this source, or that other dairymen serving the district had eked out their supplies from this source. It may be that the " infected " households sent out to the shop in question to get milk through accidental failure of other supplies, but enquiry yielded no evidence to show this. After close investigation, therefore, the case against this milk supply eventually fell to the ground.

The whole of the milk from this farm was subjected to sterilisation from January 17th. The child was taken back into the fever hospital, but on examination was not found to be a carrier.

(5) *Human Carriers of Infection.* Apart from the child at the farm referred to above, three persons needed some attention as conceivable carriers:—

(a) The manager of a shop in the " infected " Bordesley Green district. He had an illness early in November—" influenza," with abdominal pain and diarrhoea, lasting one week. Agglutination in January to B. typhosus 1/125, nil to Paratyphosus A. and B. This man had T.A.B. inoculation on war service. Only two households were served by this shop, and the manager rarely handled goods. The excreta were examined, with negative results. It does not appear at all likely that he could be the source of the outbreak.

(b) Two milk roundsmen working for a dairy in the district, serving ten of the twenty households, but *not* serving the remainder. These men had no history of illness, but both gave

Widal Reactions to B. typhosus of 1/125, and also Reactions to Paratyphosus A. and B. Both had been immunised with negative results. There is no reason to suspect these of being carriers. These men were examined only because the blood of *all* the milk roundsmen was tested.

(c) A carter in a food section of a shop had similarly a positive Widal to T. A. and B; but he had been inoculated during the War. There was no reason to suspect him of being a carrier. The excreta were examined with negative results.

It will be seen that the outbreak ended without yielding any definite clue as to the source of the infection. The dates of onset of the cases appear to indicate a limitation of the infection to a brief period from the beginning to the middle of December. The area has since remained free of all further typhoid infection up to the time of completion of this Report (May).

SMALLPOX.

Two cases of mild smallpox occurred in the City during the year. The first of these was an unvaccinated youth of 19. He had been working at Coventry in close contact with a known case of smallpox, and when seen at home he was found to be himself suffering from the disease. Particulars as to contacts were forwarded to the Medical Officers of Health for the various districts recently visited by the patient, and vaccination of all known local contacts was carried out. No further cases occurred which could be traced to this source. The second patient became ill a month later. The condition was diagnosed at a doctor's surgery and the patient was forthwith removed to the Witton Hospital. The origin of infection in this case could not be discovered. The patient had not been out of the City for several weeks, nor at his home or workplace had there been any suspicious illness. Vaccination of contacts was again carried out and no further cases were reported.

VACCINATION.

The following are the vaccination statistics for the year ending December 31st, 1928:—

Births returned	17,786	
Conscientious objections	3,626 or 20.4 per cent. of total.	
Died unvaccinated	939	
Successfully vaccinated	10,377 or 62.0 per cent. of survivors.	
Insusceptible	83 or 0.5	,, ,,
Postponed by medical certificate	110 or 0.7	,, ,,
Removed to other districts	696 or 4.1	,, ,,
Lost sight of	418 or 2.5	,, ,,
Still under notice	1,537 or 9.1	,, ,,

MEASLES.

This disease is still one of the chief killing diseases of mankind, being second only to whooping cough as the most fatal infectious disease of childhood.

Although normally it is of short duration ending in recovery and permanent immunity to further attacks, yet the course of the disease, and the liability to contract complications, is influenced to such an extent by overcrowding and insanitary conditions that we find the death-rate in cases occurring in the Central Wards of the City to be far in excess of that taking place in other wards.

MEASLES DEATH-RATE per 1,000.

	1928.	1929.
Central wards	.11	.43
Middle ring	.03	.16
Outer ring	.01	.10

Taking a period of 10 years past there has occurred in this City an average annual total of 119 deaths from measles. This figure is undoubtedly an under-estimate, as children may succumb to the complications of measles without the nature of the disease being recognised.

The mortality is confined almost entirely to children under the age of 3 years, with the highest death-rate at 2 years. After 5 years of age the mortality rate is greatly dimished.

Ages at death are shewn below:—

	1928.	1929.
Under 1 year	13	38
1 and under 2 years	17	92
2 and under 5 years	8	49
All over 5 years	3	17
	41	196

It will be seen, therefore, that of the 196 deaths from measles which occurred in 1929, 130 took place in children under 2 years of age, and 179 of the total number in children under 5 years of age.

There is reason to hope that the problem presented by this mortality will not prove insurmountable, but that methods of protection by immunisation may be capable of application in ways rendering the illness trivial while safeguarding the child against further attacks. The work at present carried out by this Department includes the home visiting of every known case of measles in order that advice regarding nursing and general hygiene may be given where required. Where the circumstances warrant it a district nurse is provided. In connection with institutional outbreaks, the procedure of immunisation of contacts has been put into effect.

The number of cases in past years, together with the mortality rate, are set out in the following table.

	Number of Cases*	Number of Deaths.	Death-rate per 1,000.
1901-5 (Average)	?	279	.36
1906-10 ...	?	294	.36
1911-15 ...	4,822 (1912-1915)	419	.48
1916-20 ...	10,773	168	.18
1921-25 ...	6,831	121	.13
1920 ...	7,144	147	.16
1921 ...	4,618	153	.17
1922 ...	4,147	79	.09
1923 ...	7,787	186	.20
1924 ...	5,969	79	.08
1925 ...	11,636	109	.11
1926 ...	6,980	78	.08
1927 ...	9,032	129	.13
1928 ...	5,030	41	.04
1929 ...	9,764	196	.20

*Partial notification only through schools, except for the years 1916—19.

SCARLET FEVER.

An excessive prevalence of a mild form of scarlet fever manifested itself at the latter part of August and early September, and a continued increase in the number of cases was maintained throughout the remainder of the year.

The Northern areas of the City were chiefly affected. Several instances of " missed case " were brought to the notice of the Public Health Department. In these, no rash had been noticed by the parent and the symptoms had been so mild as to attract little attention.

It is certain that such children have contributed considerably to the increased prevalence of the disease owing to their unwitting contact in schools and elsewhere with susceptible persons.

Scarlet Fever Cases and Deaths.

	Number of Cases.	Case-rate per 1,000.	Number of Deaths.	Death-rate per 1,000.	Case mortality per cent.
1901-05 (Average)	4,038	5.21	172	.22	4.26
1906-10 ...	3,956	4.83	116	.14	2.93
1911-15 ...	5,456	6.29	125	.14	2.29
1916-20 ...	2,472	2.73	41	.04	1.66
1921-25 ...	2,652	2.84	32	.03	1.21
1920 ...	5,563	6.13	110	.12	1.98
1921 ...	3,320	3.62	40	.04	1.20
1922 ...	3,250	3.51	36	.04	1.11
1923 ...	2,619	2.81	39	.04	1.49
1924 ...	2,219	2.31	23	.02	1.04
1925 ...	1,852	1.95	22	.02	1.19
1926 ...	1,709	1.78	8	.01	0.47
1927 ...	1,510	1.56	8	.01	0.53
1928 ...	1,521	1.56	5	.01	0.33
1929 ...	2,413	2.46	9	.01	0.37

In 1929 the local incidence was as follows:—

Central Wards	2.36 per 1,000
Middle Ring	2.13 ,,
Outer Ring	2.52 ,,

The gross number of notifications of persons diagnosed as suffering from scarlet fever was 2,501; of these 1,734 were admitted to hospital and 767 were treated at home.

Revision of diagnosis took place in a number of cases as set out in Dr. Harries' report on scarlet fever cases in the City Hospitals which will be found on page 79.

WHOOPING COUGH.

There were 123 deaths due to whooping cough in 1929. The cases and deaths in previous years are shewn in the next table.

	Number of Cases*	Number of Deaths.	Death-rate per 1,000.
1901-5 (Average)	?	316	.41
1906-10 ...	?	294	.36
1911-15 ...	2,611 (1912-1915)	213	.25
1916-20 ...	3,592	206	.23
1921-25 ...	4,463	180	.19
1920 ...	3,782	182	.20
1921 ...	2,449	93	.10
1922 ...	7,175	356	.38
1923 ...	1,772	44	.05
1924 ...	4,783	185	.19
1925 ...	6,138	222	.23
1926 ...	4,895	128	.13
1927 ...	2,496	69	.07
1928 ...	6,463	163	.17
1929 ...	3,347	123	.13

*Partial notification through schools.

The ages at death were as follows:—

	1925.	1926.	1927.	1928.	1929.
Under 1 year	94	61	31	75	46
1 and under 2 years	83	42	25	54	46
2 and under 5 years	41	17	11	30	23
Over 5 years	4	8	2	4	8
Totals	222	128	69	163	123

From the above it will be seen that 92 of the 123 deaths occurred among babies under 2 years of age.

The following death-rates indicate that, as in previous years, the death-rate is greater in the poorer areas.

Central Wards	.19 per 1,000
Middle Ring	.13 ,,
Outer Ring	.08 ,,

Every case reported is visited with a view to giving advice and to supplying where necessary the services of a district nurse under the arrangements made between the Public Health Committee and the Birmingham District Nursing Associations.

DIPHTHERIA.

The total number of cases notified as diphtheria was 2,320. Of these 2,072 were removed to the City Fever Hospital and 248 remained at home. In 706 of the cases sent to hospital the diagnosis was revised while a few cases sent in as scarlet fever proved to be suffering from diphtheria. After correction the net actual number of cases belonging to the City was 1,611, of whom 1,375 were treated in hospital and 236 at home. In addition to these a small number of cases were treated in the City Hospitals on behalf of other authorities.

Dr. Harries' report of the work of the City Hospitals will be found on page 79.

Diphtheria Cases and Deaths.

	Cases Notified.	Case-rate per 1,000 of Population.	Deaths.	Death-rate per 1,000.	Case Mortality per cent.
1901-05 (Average)	991	1.28	159	.20	16.0
1906-10	1,210	1.48	149	.18	12.3
1911-15	1,125	1.30	155	.18	13.8
1916-20	1,065	1.19	143	.16	13.4
1921-25	1,651	1.76	109	.12	6.6
1919	970	1.05	126	.14	13.0
1920	1,755	1.93	201	.22	11.5
1921	1,652	1.80	120	.13	7.2
1922	1,285	1.39	89	.10	6.9
1923	1,537	1.65	139	.15	9.0
1924	1,887	1.97	100	.10	5.3
1925	1,896	2.00	95	.10	5.0
1926	1,804	1.88	116	.12	6.4
1927	1,543	1.60	61	.06	4.0
1928	1,552	1.59	70	.07	4.5
1929	1,611	1.64	86	.09	5.3

The distribution over the City is indicated in the table below. From this it will be seen that the cases were more numerous in the central and middle ring of wards than in the outer ring.

	Ward.	Diphtheria. Case-rates per 1,000	
Central Wards	St. Paul's	3.72	Average 2.02
	St. Mary's	2.28	
	Duddeston and Nechells	1.46	
	St. Bartholomew's	1.99	
	St. Martin's and Deritend	1.72	
	Market Hall	1.04	
	Ladywood	1.93	
Middle Ring	Lozells	1.65	Average 1.45
	Aston	1.77	
	Washwood Heath	1.71	
	Saltley	1.44	
	Small Heath	1.32	
	Sparkbrook	1.55	
	Balsall Heath	1.32	
	Edgbaston	0.84	
	Rotton Park	0.81	
	All Saints'	2.09	
Outer Ring	Soho	1.62	Average 1.31
	Sandwell	1.69	
	Handsworth	1.34	
	Perry Barr	1.07	
	Erdington North	1.75	
	Erdington South	0.62	
	Yardley	2.78	
	Acocks Green	1.35	
	Sparkhill	1.32	
	Moseley and Kings Heath	1.34	
	Selly Oak	1.09	
	King's Norton	0.76	
	Northfield	0.52	
	Harborne	1.13	
	Whole City	1.64	

Age Incidence.

Ages.	Cases Notified.	Deaths Registered.	Case Mortality per cent.
Under 1 year	12	3	25
Between 1 and 2 years	45	2	4
Between 2 and 5 years	345	31	9
Between 5 and 15 years	928	41	4
Between 15 and 25 years ...	179	5	3
25 years and over	102	4	4
Total ...	1,611	86	5

Diphtheria Anti-Toxin.

Diphtheria anti-toxin is distributed free of charge to doctors for the treatment of Birmingham patients from the following places:—

The Bacteriological Laboratory, Lodge Road; The Public Health Department, Congreve Street and Police Stations at Coventry Road, Small Heath; Bristol Road, Northfield; High Street, Selly Oak; Pershore Road, Stirchley; Edward Road, Balsall Heath; High Street, King's Heath; Stratford Road, Sparkhill; Yardley Road, Acocks Green; Redditch Road, King's Norton; Coventry Road, Hay Mills; Victoria Road, Stechford; Washwood Heath; Wilton Road, Erdington; Victoria Road, Aston; Thornhill Road, Handsworth; Holyhead Road, Handsworth.

Diphtheria Immunisation.

The popularity of this means of protection against diphtheria is steadily increasing. An endeavour is being made to deal with the pre-school child, and a number of immunisation clinics have been held at various Maternity and Child Welfare centres, at each of which there has been a good response.

The proportion of immunised children to total child population in Birmingham is as yet far too small for any material reduction in the incidence of diphtheria to be observed. What has been demonstrated, however, is the control over diphtheria resulting in institutions in which this measure is introduced. During 1929 there were 9 cases of diphtheria at a residential institution for children, with 1 death. Immunisation of staff and boys was carried out, and on acquirement of the immunity resulting from this treatment the institution became freed from further cases.

Acknowledgement must again be made to the various Head-masters and Head-mistresses and to the staff of the Education Department for their interest and co-operation in the work.

Below are given particulars from which it will be seen that 9,385 persons have been immunised in the City since the commencement of the work, approximately 800 of these being adults, the remainder being school children and infants.

	Schick tested.	Schick postive.	Immunised (Full course)
Infant Welfare Centres.	—	—	928
Day Schools	1078	632	2543
Residential Institutions and Residential Schools	191	115	115
Hospitals (1) Staff	168	63	54
(2) Patients	945	406	119
Year 1929	2382	1216	3759
For period ending year 1928	10263	4224	5626
	12645	5440	9385

Toxoid Anti-Toxin for Immunisation Against Diphtheria.

Arrangements have recently been made to supply medical practitioners with material for immunising children against diphtheria. It is hoped that full advantage will be taken of the facilities provided.

INFLUENZA.

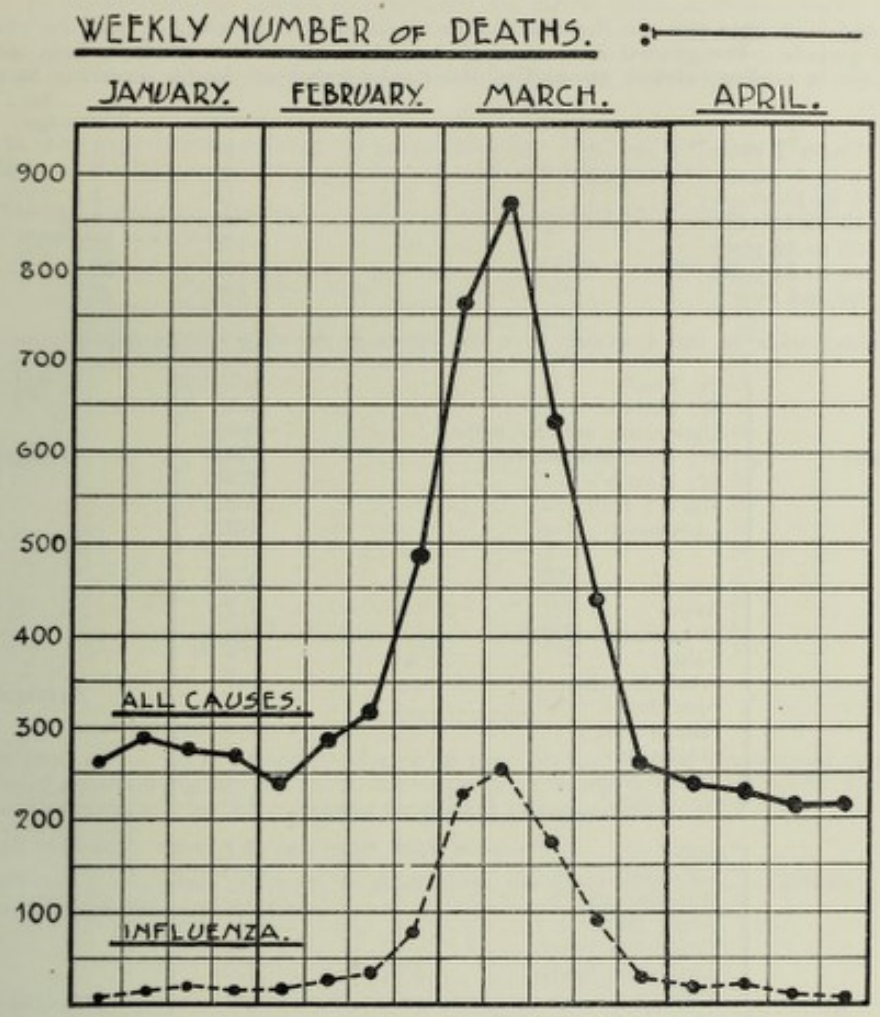
Early in February the epidemic of this disease which was raging in other parts of the country made its appearance in this City. Its onslaught was short but fierce, rising to a peak during the first week in March when 575 cases of pneumonia were notified, and 402 deaths from influenza and pneumonia registered. The death-rate reached that week (46.6) was even higher than any figure reached during the 1918 epidemic.

In the first quarter of the year the total deaths from influenza numbered 915, and constituted one-sixth of the total mortality during the quarter, against a decennial average for the same quarter of only 236. Also to this figure of 915 must be added 720 deaths which were registered as pneumonia and possibly of influenzal origin.

The statement below shows the weekly death-rate throughout the quarter together with the number of deaths attributed to influenza, and the weather conditions as indicated by the mean temperature.

Week ending	Death-rate (all causes).	Deaths from Influenza.	Mean Temperature.
January 5th	14.0	1	33.9
,, 12th	15.2	6	32.0
,, 19th	14.6	10	34.9
,, 26th	14.2	7	33.5
February 2nd	13.2	8	40.9
,, 9th	14.8	13	36.5
,, 16th	16.6	30	24.0
,, 23rd	26.4	78	33.5
March 2nd	40.1	227	30.0
,, 9th	46.6	256	41.0
,, 16th	34.2	169	42.1
,, 23rd	23.5	87	45.8
,, 30th	13.9	23	52.5
April 6th	13.1	20	43.2
,, 13th	12.8	21	42.6
,, 30th	11.6	9	47.3
,, 27th	11.6	8	42.8

The extraordinary character of the increase in mortality will be more clearly seen in the diagram on the opposite page which shows the weekly number of deaths during the first four months of the year both from all causes and from influenza itself. It will be seen that after the middle of February the mortality started to rise with great rapidity so that in three weeks it had almost trebled. Then an equally sudden fall occurred and in another four weeks the normal level had been reached again.



Although the total mortality reached a higher figure than had previously been recorded, the deaths from influenza were not so numerous as in 1918, when the last very severe epidemic occurred. It seems likely that a large part of the excess was directly due to the severe frost. This is borne out by an examination of the age distribution of the mortality for the first quarter of the year at certain age periods as shown below:—

Age periods.	1st Quarter, 1929.	Average 1924-8.	Percentage increase.
Under 1 year	477	416	15%
1 to 4 years	377	219	72%
5 to 14 years	122	91	34%
15 to 24 years	145	120	21%
25 to 44 years	495	376	32%
45 to 64 years	1410	840	68%
65 and over	2378	1236	92%

It is clear from these figures that the excessive mortality was most marked in children between 1 and 5 years old and in persons over 45 years of age, and more particularly in those over 65 years. These are the age-periods at which intense cold might be expected to have the most serious effect. It is notable that the smallest increase of all is in infants under one year of age, who appear to be better protected than the rest of the population from the effects both of cold weather and of influenza.

The subjoined table sets out the distribution of the influenzal mortality for the year over different age periods. The general increase in the number of deaths corresponding with the increase of age is evident, almost one-half of the total number of deaths occurring in persons over 65 years.

	Number.	Percentage.
Under 1 year	19	1.8
1 to 4 years	32	3.0
5 to 14 years	14	1.3
15 to 24 years	26	2.4
25 to 44 years	142	13.3
45 to 64 years	342	32.1
65 and over	491	46.1

The distribution of the mortality over the wards of the City was as follows: —

Central Wards	St. Paul's	0.7	Average 1.1
	St. Mary's	1.0	
	Duddeston and Nechells	0.8	
	St. Bartholomew's	1.5	
	St. Martin's	1.3	
	Market Hall	1.3	
	Ladywood	1.0	
Middle Ring ...	Lozells	1.5	Average 1.2
	Aston	1.2	
	Washwood Heath	0.6	
	Saltley	0.8	
	Small Heath	0.7	
	Sparkbrook	1.4	
	Balsall Heath	1.6	
	Edgbaston	1.7	
	Rotton Park	1.1	
	All Saints'	1.0	
Outer Ring ...	Soho	1.1	Average 1.0
	Sandwell	1.0	
	Handsworth	1.5	
	Perry Barr	1.1	
	Erdington North	0.4	
	Erdington South	1.0	
	Yardley	0.9	
	Acock's Green	1.0	
	Sparkhill	0.9	
	Moseley and King's Heath ...	0.9	
	Selly Oak	1.3	
	King's Norton	0.9	
	Northfield	0.5	
	Harborne	0.8	

The ward with the heaviest mortality was Edgbaston closely followed by Balsall Heath, Handsworth, Lozells and St. Bartholomews. These wards are widely separated and of a very diverse social character. The lowest rates were in Erdington North, Northfield, and Washwood Heath, wards again which are widely separated from each other. Several of the poorest wards in the town had comparatively low rates, and it will be noticed that the average for the central wards was practically identical with that for the middle and outer rings.

During the epidemic a large part of the work of the health visitors consisted in the visiting of cases of pneumonia and securing help and treatment as far as possible.

The District Nursing Association Service was assisted by attaching one health visitor to them for nursing purposes, and such patients as could not be nursed by the Association were reported to the Public Health Department when our Staff took over the visiting.

Work was considerably hampered by the incidence of influenza among the Health Visiting Staff.

Pype Hayes Hall was opened on March 1st for the reception of children under five years of age suffering from pneumonia. Thirty beds were available, and only seriously ill patients were admitted. Many of the cases were moribund on admission, and, as would be expected, the death-rate was high, the number of cases admitted being 65 and the deaths numbering 17, or 26 per cent.

As the result of the epidemic the infant mortality rate rose for a period to as high as 176. The effect of this figure upon the rate for the year has been noted.

The mortality from Influenza in 1929 as compared with that in the preceding ten years can be seen from the next table.

	Deaths.	Rate per 1,000.
1901-05 (Average) ...	102	.13
1906-10 ,, ...	150	.18
1911-15 ,, ...	115	.13
1916-20 ,, ...	780	.88
1921-25 ,, ...	317	.34
1920	421	.46
1921	134	.15
1922	442	.48
1923	264	.28
1924	375	.39
1925	370	.39
1926	260	.27
1927	399	.41
1928	130	.13
1929	1,066	1.09

DYSENTERY.

A total of 19 cases of bacillary dysentery were notified to this Department throughout the year, the diagnosis being arrived at, in the majority of cases, by bacteriological examination of blood and excreta, and in the remainder by clinical evidence.

All infections were relatively mild with no deaths.

Eleven of the cases occurred in Institutions, the remaining 8 being confined to three households in different parts of the City.

ACUTE ANTERIOR POLIOMYELITIS.

Six genuine cases of this disease occurred in the City, one shewing complete recovery 4 months after onset, the remaining five having varying degrees of paralysis or weakness still existing.

POLIOMYELITIS.

Year.	Cases notified	Died	Complete recovery.	Some Paralysis.
1917 ...	11	2	6	3
1918 ...	4	—	2	2
1919 ...	14	1	6	7
1920 ...	1	—	—	—
1921 ...	11	4	1	6
1922 ...	6	—	1	5
1923 ...	33	3	1	29
1924 ...	39	5	5	29
1925 ...	11	3	5	3
1926 ...	38	3	3	32
1927 ...	15	1	6	8*
1928 ...	6	1	1	4
1929 ...	6	—	1	5

*One died later of intercurrent disease.

POLIO-ENCEPHALITIS.

Three cases occurred in the City during the year. Of these, 1 died, while the remaining 2 still show paralysis, which is receiving appropriate treatment.

ENCEPHALITIS LETHARGICA.

During the year 27 cases came to light and 20 deaths were registered among them, giving a case fatality rate of 74.1%, which from the table given below will be seen to be the highest rate yet experienced since 1919.

On analysing the cases, however, we find the following:—

11	had a date of onset in	1929
2	cases not previously notified had a date of onset in ...	1928
5	" " " " " " " " " " ...	1927
2	" " " " " " " " " " ...	1926
3	" " " " " " " " " " ...	1925
4	" " " " " " " " " " ...	1924

Of the 20 cases which died in 1929 five only had been notified for that year, these five persons dying within a period of 10 days from the date of onset.

It will thus be seen that the figures include a certain number of patients in whom the disease was not notified during their lifetime, and hence the case mortality cannot be taken as reliable.

ENCEPHALITIS LETHARGICA.

Year.	Cases.	Deaths.	Fatality per cent.
1919	**11**	**5**	**45.5**
1920	**18**	**7**	**38.9**
1921	**25**	**8**	**32.0**
1922	**12**	**4**	**33.3**
1923	**29**	**12**	**41.4**
1924	**282**	**44**	**15.6**
1925	92	32	34.8
1926	89	36	40.4
1927	53	32	60.4
1928	41	22	53.7
1929	27	20	74.1

The following table shows the sex, age-groups and number of deaths of the 27 cases in which the diagnosis of encephalitis lethargica has been confirmed.

Age group.	No. of Cases. Male.	No. of Cases. Female.	No. of Deaths. Male.	No. of Deaths. Female.
1— 5 years	2	1	2	1
5—15 years	2	0	2	0
15—25 years	3	0	1	0
25—45 years	4	7	3	4
45 and over	3	5	2	5
	14	13	10	10

CEREBRO-SPINAL FEVER.

Fifteen cases of this disease occurred in this City during the year, all succumbing to the attack, giving a case mortality of 100%. This is markedly in excess of that experienced during the past 10 years.

Two cases were aged 22 years and 47 years respectively, two others were each 3 years of age, the remaining eleven cases were in children under 1 year old.

CEREBRO SPINAL FEVER.

Year.	Cases notified.	Deaths.	Fatality per cent.
1920	**25**	**18**	**72**
1921	**9**	**7**	**78**
1922	**18**	**16**	**89**
1923	**4**	**2**	**50**
1924	**11**	**8**	**73**
1925	**7**	**6**	**86**
1926	**10**	**9**	**90**
1927	**12**	**10**	**83**
1928	**12**	**9**	**75**
1929	**15**	**15**	**100**

TUBERCULOSIS.

The cases of Tuberculosis showed a further decrease during 1929, the number notified being 1,538 against 1,606 in 1928.

The cases and deaths in past years are given in the next table:—

TUBERCULOSIS (ALL FORMS).

	New Cases.	Rate per. 1,000	Deaths.	Death-rate per 1,000
1901-1905 (Average)	—	—	1,384	1.78
1906-1910 ,,	—	—	1,235	1.51
1911-1915 ,,	—	—	1,307	1.51
1916-1920 ,,	3,343	3.73	1,261	1.40
1921-1925 ,,	2,060	2.20	1,046	1.12
1919	3,116*	3.37	1,188*	1.28
1920	2,974	3.28	1,001	1.10
1921	2,247	2.45	1,035	1.13
1922	1,961	2.12	1,049	1.13
1923	2,166	2.32	1,006	1.08
1924	2,129*	2.22	1,055*	1.10
1925	1,797	1.89	1,083	1.14
1926	1,704	1.78	1,024	1.06
1927	1,607	1.66	1,017	1.05
1928	1,606	1.64	965	0.99
1929	1,538	1.57	1,066	1.09

* 53 weeks.

This table shows how steady has been the decrease in new cases. The diminution in mortality, while in general showing a downward trend, is not quite so regular in its course. This is in part the result of the accumulation year by year of chronic cases who would, in the absence of treatment, have died earlier, and who may succumb in relatively large numbers when exposed to acute intercurrent infection, as happened, for example, during the severe outbreak of influenza in 1929.

It is encouraging to find that the incidence of the disease has been reduced in the past ten years by one half, and the death-rate by one quarter. The slight increase in mortality in 1929 was, as suggested above, no doubt due to the Influenza epidemic experienced during very severe cold in the early part of the year.

The relative prevalence and mortality from pulmonary and other forms of tuberculosis is indicated in the next two tables:—

PULMONARY TUBERCULOSIS.

	New Cases.	Rate per. 1,000	Deaths.	Death-rate per 1,000
1901-1905 (Average)	—	—	1,039	1.34
1906-1910 ,,	—	—	947	1.16
1911-1915 ,,	—	—	1,057	1.22
1916-1920 ,,	2,936	3.27	1,062	1.18
1921-1925 ,,	1,739	1.86	903	0.96
1919	2,704*	2.92	1,019*	1.10
1920	2,609	2.87	843	.93
1921	1,969	2.15	890	.97
1922	1,669	1.80	899	.97
1923	1,785	1.91	860	.92
1924	1,780*	1.85	934*	.97
1925	1,491	1.57	930	.98
1926	1,421	1.48	905	.94
1927	1,343	1.39	857	.89
1928	1,361	1.39	840	.86
1929	1,270	1.30	918	.94

* 53 weeks.

NON-PULMONARY TUBERCULOSIS.

	New Cases.	Rate per. 1,000	Deaths	Death-rate per 1,000
1901-1905 (Average)	—	—	345	.45
1906-1910 ,,	—	—	289	.35
1911-1915 ,,	—	—	249	.29
1916-1920 ,,	407	.45	199	.22
1921-1925 ,,	321	.34	143	.15
1919	412*	.45	169*	.18
1920	365	.40	158	.17
1921	278	.30	145	.16
1922	292	.32	150	.16
1923	381	.41	146	.16
1924	349*	.36	121*	.13
1925	306	.32	153	.16
1926	283	.30	119	.12
1927	264	.27	160	.17
1928	245	.25	125	.13
1929	268	.27	148	.15

* 53 weeks.

The figures show that the non-pulmonary forms constitute only about one-six of the total and that they have decreased even more considerably than the pulmonary form.

The cases notified in 1929 comprised the varieties shown in the next statement, which also indicates the number of cases which came to light through the death certificates without having been previously notified, as well as the total deaths.

	New Cases Notified in 1929.	Deaths not Notified as Cases before Death.	Total Deaths.
Pulmonary Tuberculosis	1,270	84	918
Tubercular Meningitis	24	47	60
Tubercle of the Abdomen	48	16	28
Tubercle of the Spinal Column ...	40	6	10
Tubercle of the Joints	66	—	2
Disseminated Tuberculosis ...	4	19	34
Tubercle of the Glands and other parts	86	13	14

It will be noted that only a comparatively small proportion of cases of pulmonary tuberculosis escape notification. On the other hand, out of 60 deaths last year from Tubercular Meningitis, only 13 had previously been notified, and a somewhat similar proportion holds in most of the other non-pulmonary forms.

In many of the pulmonary cases a long interval elapses between notification and death. Last year there were 69 deaths which had been notified as cases more than 10 years previously, and 123 others which had been notified at least 5 years before death. In this connection it should be borne in mind that a large number of the cases notified end in a satisfactory recovery. Last year, for instance, 723 patients were written off as now well, while in 489 other cases the disease was arrested although the patient was being kept under supervision in case of a recrudescence. There are at present 9,100 known cases of tuberculosis in the City, being in the proportion of 9 cases per 1,000 of the population.

The distribution of new cases of pulmonary and non-pulmonary tuberculosis over the wards of the City is shown in the next table:—

DISTRIBUTION OF TUBERCULOSIS.

		Case-rate per 1,000 in 1929. Pulmonary.	Non-Pulmonary.	Total.	
Central Wards	St. Paul's	2.08	.47	2.55	Average 2.29
	St. Mary's	1.90	.35	2.25	
	Duddeston and Nechells	2.45	.45	2.90	
	St. Bartholomew's ...	1.50	.52	2.02	
	St. Martin's & Deritend	1.98	.29	2.27	
	Market Hall	2.07	.24	2.31	
	Ladywood	1.46	.25	1.71	

Middle Ring ...	Lozells	1.27	.47	1.74	Average 1.48
	Aston	1.92	.18	2.10	
	Washwood Heath ...	0.95	.10	1.05	
	Saltley	0.97	.20	1.17	
	Small Heath	0.92	.17	1.09	
	Sparkbrook	1.17	.20	1.37	
	Balsall Heath	1.27	.17	1.44	
	Edgbaston	0.75	.35	1.10	
	Rotton Park	1.54	.43	1.97	
	All Saints'	1.55	.22	1.77	
Outer Ring ...	Soho	1.09	.08	1.17	Average 1.27
	Sandwell	0.90	.30	1.20	
	Handsworth	0.97	.17	1.14	
	Perry Barr	2.50	—	2.50	
	Erdington North ...	1.09	.38	1.47	
	Erdington South ...	0.83	.21	1.04	
	Yardley	1.47	.43	1.90	
	Acocks Green	1.00	.16	1.16	
	Sparkhill	0.78	.19	0.97	
	Moseley & King's Heath	0.60	.14	0.74	
	Selly Oak	0.70	.46	1.16	
	King's Norton ...	0.56	.12	0.68	
	Northfield	1.30	.17	1.47	
	Harborne	0.96	.17	1.13	

The incidence is on an average twice as high in the crowded poor-class central wards as it is in the more suburban areas.

Work of Tuberculosis Visitors.

As already stated there are over 9,000 known cases of tuberculosis in the City and these, with a few exceptions, are visited in their homes at regular intervals. The visits paid last year were as follows:—

Primary visits (to fresh cases)	1,847
Routine visits (old and new cases)	20,427
Visits for special purposes	10,201

At the first visit 955 patients out of a total of 1,847 were found to be sharing a bed and 294 others shared a room with separate beds in it. It is very undesirable that persons suffering from tuberculosis should sleep in close proximity to others, and efforts are always made to get the patients' sleeping arrangements improved where necessary. In a considerable proportion of these cases the sleeping arrangements were adjusted, in a way diminishing risks of infection. To assist further in this direction, 120 open-air shelters were issued last year to patients who had facilities for using them, as well as 45 additional beds.

The record cards for the cases notified in 1929 and kept under supervision up to the time of writing, have been examined with a view to finding out how many have been able and willing to get better sleeping accommodation. These show that at the first visit the position was as follows:—

	Pulmonary Cases.	Other Cases.	Total.
Sharing bed	698	115	813
Sharing bedroom but separate bed ...	190	72	262
Separate bedroom	292	53	345
	1,180	240	1,420

At the time of writing the position had been greatly improved, although still far from satisfactory. The improvement is shown by the following figures, which relate to adjustments in sleeping arrangements among the 813 patients who, at the first visit, were found to be sharing a bed with others:—

	Pulmonary Cases.	Other Cases.	Total.
Separate bedroom arranged	117	4	121
Separate bed (but not bedroom) ...	137	12	149

Thus in about one-third some improvemen in sleeping arrangements was effected.

The difficulty of arranging suitable sleeping accommodation will be realised when it is stated that in 488 cases out of the total of 1,420 there were more than 2 persons to be accommodated per bedroom. This makes it difficult to arrange a separate bed and almost impossible to arrange a separate room for the patient. In 56 of thes cases a larger house has since been obtained.

Tuberculosis in St. Martin's and Deritend Ward.

In connection with an enquiry into the incidence of Tuberculosis in St. Martin's and Deritend Ward, the record cards of the cases in that ward (exclusive of those in Lodging Houses) have been examined. Altogether there are 571 known cases in the ward equal to 13.8 cases per 1,000 of the population. In the City as a whole the proportion is 9.2 per 1,000. The amount of house-room available for these patients is shown in the statement below:—

Family	living	in	1	room		in 4	instances.
,,	,,	,,	2	rooms		,, 23	,,
,,	,,	,,	3	,,		,, 353	,,
,,	,,	,,	4	,,		,, 96	,,
,,	,,	,,	5	,,		,, 51	,,
,,	,,	,,	6	rooms	or more	,, 43	,,
No record						,, 1	,,
						571	

Many of the three-romed houses (that is, houses with 2 bedrooms and 1 living-room) are badly overcrowded as shown by the following figures.:—

2	houses	have	12	occupants.
5	,,	,,	11	,,
7	,,	,,	10	,,
12	,,	,,	9	,,
21	,,	,,	8	,,
51	,,	,,	7	,,
59	,,	,,	6	,,
65	,,	,,	5	,,

In only 131 cases were there less than 5 people to be accommodated in the two bedrooms. It is evident that in the majority of cases in this ward effective isolation of the patient is impossible.

The investigation shows that in this ward there are 51 families with two cases of the disease in the house, 6 families with three, one with four, and one with five cases in the house. In 28 instances the patient's house is shared by two families, and in 4 instances by 3 families.

In view of the figures already given, it is not surprising that the sleeping accommodation for patients is far from satisfactory. It is as follows:—

Patient has separate bedroom	in 62 instances.
Shares room but has separate bed	in 198 instances.
Shares bed	in 311 instances.

A large proportion of the patients have availed themselves of the help provided by the Public Health Committee. As many as 493 patients or 86% of the total have been examined once at least at the Broad Street Dispensary, and 320 have been to a Sanatorium, partly for the benefit of their own health, but largely in order that they may learn how to live at home with as little danger as possible to their relatives. In 38 instances an additional bed has been issued on loan or hire-purchase; in 2 cases in which there is a garden, an open-air shelter has been provided; 29 patients have had " extra nourishment " under the Tuberculosis Scheme, and 3 have been helped from the " Tippetts Bequest " Fund.

At the time of the last visit the condition of the patient was reported upon as follows:—

Able to work full time	169
,, ,, ,, part ,,	16
Unable to work	109
Out of work	32
Confined to bed	2
Children	123
Women (home duties only)	120

The following tables indicate that while St. Martin's and Deritend Ward has not uniformly the highest incidence of tuberculosis among the City Wards, it has nevertheless an unenviable position, near the top of the list where not actually at the top.

PULMONARY TUBERCULOSIS. CASE-RATE PER 1,000.

	1924	1925	1926	1927	1928	1929
St. Paul's	2.16	1.54	2.28	2.01	1.90	2.08
St. Mary's	3.02	2.37	2.50	2.87	2.52	1.90
Duddeston and Nechells	2.69	2.22	2.21	2.14	2.28	2.45
St. Bartholomew's	2.40	2.44	1.89	1.97	1.80	1.50
St. Martin's and Deritend	4.39	3.41	2.52	2.24	2.52	1.98
Market Hall	2.11	1.90	1.46	1.90	1.55	2.07
Ladywood	2.10	1.85	1.62	1.90	1.89	1.46
CITY	1.85	1.57	1.48	1.39	1.39	1.30

NON-PULMONARY TUBERCULOSIS. CASE-RATE PER 1,000.

	1924	1925	1926	1927	1928	1929
St. Paul's	.31	.49	.43	.51	.46	.47
St. Mary's	.46	.56	.30	.34	.50	.35
Duddeston and Nechells	.43	.46	.48	.34	.32	.45
St. Bartholomew's	.59	.38	.28	.31	.31	.52
St. Martin's and Deritend	1.05*	.80*	.42	.43	.35	.29
Market Hall	.21	.27	.38	.11	.18	.24
Ladywood	.42	.33	.50	.48	.21	.25
CITY	.36	.32	.30	.27	.25	.27

* These high rates were largely the result of notifications from one medical practitioner who subsequently left the area.

The figures set out in the next table show the prevalence of pulmonary and of non-pulmonary tuberculosis in St. Martin's and Deritend Ward and in the City as a whole year by year from 1915 onwards.

It will be seen that—

(a) The prevalence in this Ward has been consistently and markedly higher than in the City as a whole.

(b) The prevalence both of pulmonary and of non-pulmonary tuberculosis in the Ward has diminished with considerable steadiness and rapidity, a decrease of 49% of cases notified being recorded for the period 1925—29 as compared with the period 1915—19.

(c) The diminished prevalence, while less marked than that for the City as a whole (56% decrease over the same period) is nevertheless not so very dissimilar in degree to the latter.

TUBERCULOSIS CASE-RATES PER 1,000 POPULATION.

	ST. MARTIN'S AND DERITEND.			CITY.		
	Pulmonary.	Non-Pulmonary.	Total.	Pulmonary.	Non-Pulmonary.	Total.
1915	6.07	.92	6.99	3.41	.55	3.96
1916	5.66	.79	6.45	3.80	.49	4.29
1917	4.36	.40	4.76	3.42	.53	3.95
1918	5.32	.91	6.23	3.35	.40	3.75
1919	4.44	.68	5.12	2.92	.45	3.37
Average	**5.17**	**.74**	**5.91**	**3.38**	**.48**	**3.86**
1920	4.13	.63	4.76	2.87	.40	3.28
1921	3.01	.40	3.41	2.15	.30	2.45
1922	3.42	.78	4.20	1.80	.32	2.12
1923	3.88	1.05	4.93	1.91	.41	2.32
1924	4.39	1.05	5.44	1.85	.36	2.22
Average	**3.77**	**.78**	**4.55**	**2.12**	**.36**	**2.48**
1925	3.41	.80	4.21	1.57	.32	1.89
1926	2.52	.42	2.94	1.48	.30	1.78
1927	2.24	.43	2.67	1.39	.27	1.66
1928	2.52	.35	2.87	1.39	.25	1.64
1929	1.98	.29	2.27	1.30	.27	1.57
Average	**2.53**	**.46**	**2.99**	**1.43**	**.28**	**1.71**
Decrease 1925–29, on 1915–19	51%	38%	49%	58%	42%	56%

On the opposite page are set out particulars of the cases of pulmonary and of non-pulmonary tuberculosis in the Ward and in the City as a whole in relation to age and sex. The figures show that while the age incidence is not dissimilar in the two groups, there is a relative preponderance of pulmonary tuberculosis among males in St. Martin's and Deritend, where cases of this condition among males exceed the proportion among females by 68 per cent., but in the City as a whole the male rate exceeds the rate among females by only 51 per cent. The wage-earner therefore is hit particularly hard in the Ward by comparison with the City.

TUBERCULOSIS 1927–1929.

NUMBER OF CASES—ST. MARTIN'S AND DERITEND WARD.

Ages.	Pulmonary Tuberculosis.						Non-Pulmonary Tuberculosis.					
	Males.		Females.		Total.		Males.		Females.		Total.	
	Cases	% of Total	Cases	% of Total	Cases	% of Total	Cases	% of Total	Cases	% of Total	Cases	% of Total
0—5	4	2	4	3	8	3	4	15	8	38	12	26
5—15	17	10	18	17	35	12	10	38	8	38	18	38
15—25	24	14	27	25	51	18	3	12	2	10	5	11
25—45	50	28	40	37	90	32	5	19	3	14	8	17
45—65	75	43	18	17	93	33	3	12	—	—	3	6
65 up.	6	3	1	1	7	2	1	4	—	—	1	2
Total	176		108		284		26		21		47	
Case rates	2.80		1.67		2.23		.41		.33		.37	

NUMBER OF CASES—CITY.

0—5	35	2	26	1	61	1	81	20	82	22	163	21
5—15	180	8	209	12	389	10	170	43	118	31	288	37
15—25	455	20	536	31	991	25	79	20	95	25	174	22
25—45	844	38	687	40	1531	39	45	11	55	15	100	13
45—65	667	30	255	15	922	23	19	5	28	7	47	6
65 up.	57	2	23	1	80	2	4	1	1	—	5	1
Total	2238		1736		3974		398		379		777	
Case rates	1.69		1.12		1.36		.29		.25		.27	

It will be recognised that the data put together above cannot provide by any means a complete picture of the factors associated with the high prevalence of tuberculosis in St. Martin's and Deritend Ward. While the data necessarily lay stress on questions of housing, and while this is unquestionably a very important factor, other factors have to be remembered. It is not merely that bad housing implies overcrowding, poor ventilation, and increased risks of infection. But to the poor quarters there is always a current of those who are poor through ill-health, so that many drift there because they are already tuberculous. Further, the population in the poor quarter is the least educated, the least capable for that reason of taking the more elementary precautions against infection; while their poverty may mean insufficiency of food, and their need may mean their employment in occupations where their physical conditions are insufficiently considered. These and other aspects of the difficult tuberculosis problem find their illustration in the Ward here reviewed.

Tuberculosis Regulations.

No action was necessary during the year under the Public Health (Prevention of Tuberculosis) Regulations, 1925, relating to tuberculous employees in the milk trade. No action was required during the year under Section 62 of the Public Health Act, 1925, which relates to compulsory removal of a patient to a sanatorium.

City Sanatoria.

The Birmingham patients admitted to the sanatoria during 1929 were as follows:—

	Yardley Road.	Salterley Grange.	Romsley Hill.	West Heath.	Total.
In sanatorium at beginning of year	296	50	77	95	518
Admitted during year	1,011	213	267	331	1,822
Discharged	831	215	257	237	1,540
Died	170	3	17	104	294
Remaining at end of year	306	45	70	85	506

In addition to the above, 37 cases were admitted to the Royal Cripples Hospital, 1 to the General and Jaffray Hospitals, 22 to the Children's Hospital, and 20 to Moseley Convalescent Home. In these cases a grant is paid by the Public Health Committee towards the patients' maintenance.

THE ANTI-TUBERCULOSIS CENTRE.

(Report by Dr. G. B. Dixon, Chief Clinical Tuberculosis Officer).

The Anti-Tuberculosis Centre, centrally situated in the City is open daily for five days during the week, and on Saturdays for half the day. Six sessions weekly are reserved for patients attending for treatment, supervision and observation. Thirty-nine sessions, and occasionally more, are set apart weekly for consultations and examinations; in addition, many consultations and examinations are undertaken at the homes of patients by members of the medical staff. Many of our patients attend the Sanatorium at Yardley Road as out-patients for artificial light treatment.

Admissions to the City Sanatoria are decided upon only after examination at the Centre, or at the patient's home, and the sanatorium to which they are sent depends entirely upon the condition of the patient's disease, etc.

On returning from Sanatoria, patients are re-examined at the Centre and many old patients who have discontinued treatment for various purposes are re-examined from time to time.

The Anti-Tuberculosis Scheme provides 36 beds for the purpose of observation, which are situated at Yardley Road Sanatorium. Ten are reserved for boys; ten for adult males; eight for adult females; and eight for female children. Their utilization allows us to make a correct diagnosis in many instances where this would be impossible without the facilities which they offer.

The Scheme is also fortunate in having a large number of beds set apart for the care and treatment of the "hospital" type of case. Advanced male cases are admitted to Yardley Road Sanatorium and advanced female cases to West Heath Sanatorium. Beds for the treatment of advanced types of tuberculosis are essential upon humanitarian grounds, and in addition, are a prophylactic asset in association with the Public Health work of the City, from which point of view it is advisable that as large a percentage as possible of the deaths annually occurring in the City from pulmonary tuberculosis, should take place in the Sanatorium pavilions provided for patients with advanced disease, as the risk of infection from this type of patient is usually greater during the last six months of life.

Attendances and Examinations.

During the year 1929, the total number of attendances made by patients for diagnosis, consultation, observation, advice and treatment was 24,383, the total number of attendances for supervision, observation, advice and treatment was 10,400, the number of examinations made was 9,372, and, in addition, there were 4,611 x-ray examinations. As compared with the previous year there was a decrease in the number of attendances, for supervision, observation and treatment, and a slight decrease in the number of examinations. During the year, a grant of extra nourishment was given to 145 patients. Shelters, beds and bedding were hired or loaned to 488 patients, and a number of patients were helped to procure housing accommodation.

Attendances for supervision, observation, treatment ...	10,400
Attendances for consultation and examination	9,372
Attendances for x-ray examination	4,611
	24,383

During the year 1929, 1,270 new cases of pulmonary tubercle were notified to the Medical Officer of Health, and of this number 1,018 or 80.15 per cent. were examined at the Centre. There were also 268 cases of non-pulmonary tuberculosis notified during the year, and 81 or 30.22 per cent. were examined at the Centre.

The number of persons on the dispensary register on January the first, was 6,359, the number of patients transferred to other areas during the year, and the cases lost sight of, numbered 282; the number of patients transferred to us from other areas, and the "lost sight of cases" returned, was 214.

Dental treatment was given during the year to 240 patients attending the Centre. At the end of the year 725 insured persons were receiving domiciliary treatment at the recommendation of the medical staff. There were over 3,000 consultations with medical practitioners, during the year, and the number of reports from medical practitioners received by us during the year numbered over 2,000.

Treatment Recommended.

7,113 old and new patients were examined at the Centre during the year. The following table shows the number of newly notified and suspect cases of all varieties of tuberculosis, and the number of patients coming up for re-examination. It also shows the numbers recommended for the different forms of treatment. Some 991 patients were examined at their own homes.

	First Examinations.		Re-examinations.	
	Newly notified.	Suspects or Contacts.	Old Cases.	Suspects or Contacts.
Sanatorium Treatment	610	337	506	25
Dispensary Treatment	21	4	55	—
Dispensary for supervision	60	95	1,331	55
Out-patient Light Treatment	7	8	17	2
Domiciliary Treatment	125	55	1,270	4
Home Treatment for other than P.T.	—	—	9	—
Hospital Treatment for other than P.T. ...	—	1	3	—
No Treatment required	276	1,556	427	383
	1,099	2,056	3,618	469

Classification of Patients According to Group of Disease.

The following tables show the classification of the patients examined according to Group of disease; adults and children are shown separately.

Adults.

	First Examinations.		Re-examinations.	
	Newly notified.	Suspects or Contacts.	Old Cases.	Suspects or Contacts.
Group I.	95	71	643	5
Group II.	330	162	1,581	8
Group III.	255	87	546	2
Group IV.	43	14	113	—
No Treatment Required	229	939	105	171
	952	1,273	2,988	186

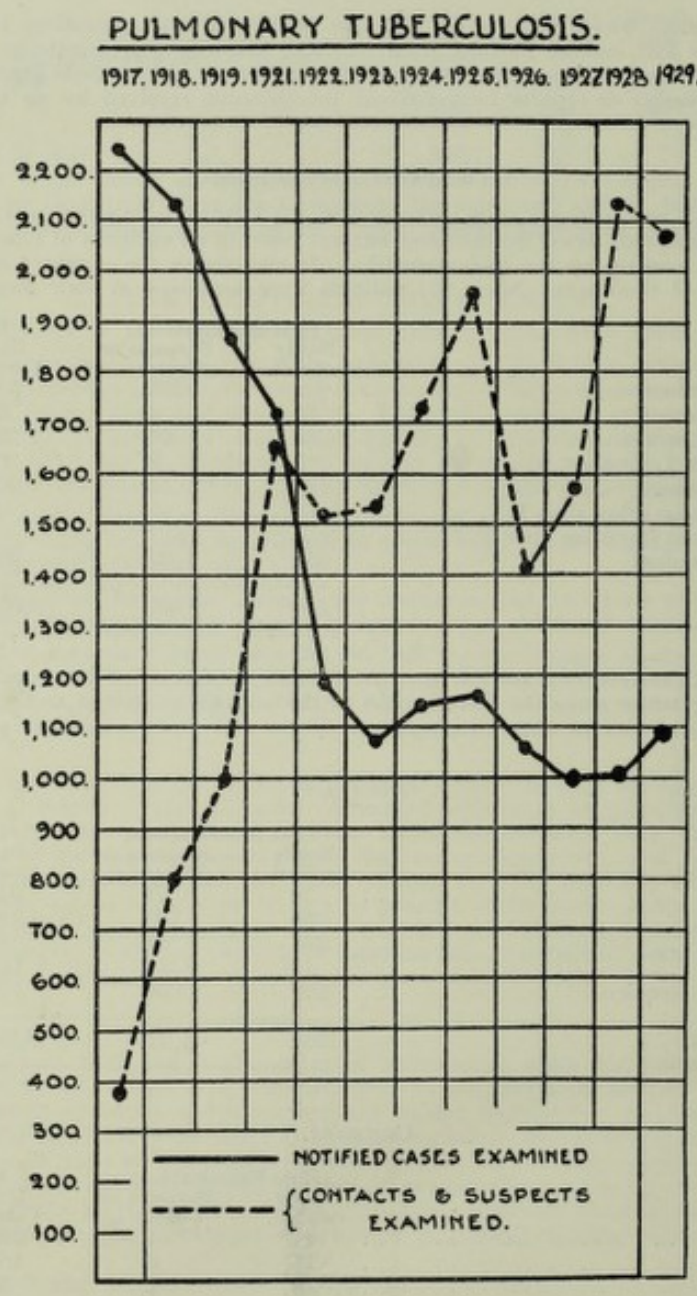
Children.

	First Examinations.		Re-examinations.	
	Newly notified.	Suspects or Contacts.	Old Cases.	Suspects or Contacts.
Group I.	14	51	248	11
Group II.	11	8	165	1
Group III.	8	1	35	3
Group IV.	38	19	121	6
No Treatment Required	76	704	61	262
	147	783	630	283

In certain instances patients included in the various Groups are suffereing from other forms of tuberculosis in addition to pulmonary, but for convenience are classified as pulmonary cases, when this type of the disease is present in association with other forms.

"Contacts" and Notified Cases.

In the graph are shown the number of contacts and suspects, and notified cases, examined over a series of years.



The following table shows the working capacity of the newly notified cases when they were examined for the first time. It is interesting to note that among adults, 24.8 per cent. were sent to us while their working capacity was still unimpaired, and 28.4 per cent. came to us when totally incapacitated. In the case of the children, this point is more emphasised; 53.7 per cent. had an unimpaired working capacity and 19.7 per cent. were totally incapacitated, the working capacity indicated here being ability or otherwise to attend school regularly.

	Newly notified patients.		Contacts and Suspects.	
	Adults.	Children.	Adults.	Children.
Unimpaired working capacity	236	79	935	699
Impaired working capacity	446	39	263	82
Totally incapacitated	270	29	75	2
	952	147	1,273	783

Family History.

A survey of the family and social history o 4,908 patients who were examined during the year shows that there was no history of existing tuberculosis or knowledge of relatives dying of, or suffering from, tuberculosis in connection with 3,038 or 61.9 per cent. In 1,870 or 38.1 per cent. there was a history of some near relative or intimate friend being either affected with tuberculosis, or having succumbed to it. In 462 instances or 9.4 per cent. the relative affected was the father, and in 232 or 4.7 per cent. the relative affected was the mother, and in 465 or 9.4 per cent. a brother or sister was affected. In 411 instances two or more relatives were known to have suffered from tuberculosis.

Dental Treatment.

The services of a part-time dental surgeon are utilised at the Centre for the necessary treatment of our patients. The treatment is conservative in type, and consists mainly of extractions, fillings and scalings. There is no fund to assist in the provision of artificial dentures. Those patients who wish to provide their own can do so under conditions advantageous to themselves by arrangement with the dentist. The condition of the teeth and gums of most of our patients is carefully noted, and in the table below is briefly summarised the dental condition of patients seen during the year so far as dental caries, masticatory power, and the state of the gums were concerned. The dental surgeon informs me that there were 455 extractions, 2 fillings and 12 scalings, and dentures were supplied in 20 instances.

Condition of Teeth and Gums.

Number of Teeth with infected pulp chambers.			Masticatory power in Molars and Bicuspids.			State of Gums.		
None.	1 to 4.	More than 4.	Six or more.	Less than 6.	None.	Healthy.	Gingivitis.	Pyorrhoea.
1,535	2,537	449	2,961	1,051	490	3,267	757	537

Sputum Results.

A very large number of sputum examinations are undertaken during the year on behalf of persons who are referred to us for an opinion. If the first examination gives a negative result, subsequent and repeated specimens are examined by the concentration method of Ellerman and Erlandsen. It is useless to attach importance to one or two sputum examinations for tubercle bacilli when the result is negative, and unless at least five or six specimens have been examined a negative result should not be given too much importance.

As soon as a patient is referred to us for examination, a sputum outfit with instructions and a request for its early return, are posted.

Many specimens from an individual patient are examined when they prove to be negative; in addition, concentration methods are utilised extensively, and the medical staff supervises the examinations. This of course would be impossible if the examinations were not undertaken by our own staff, and because they are, the institution derives an economic and administrative benefit, unnecessary expense, delay, and restriction of examinations or methods of technique, are all cut out.

Amongst the new adult patients examined at the Centre during the year, there were 581 or 61 per cent. who presented tubercle bacilli in their sputum, and amongst the total number of children examined primarily during the year, 4 or 2.7 per cent. presented tubercle bacilli in their sputum.

The difficulty of obtaining sputum from children, even when it exists, is recognised, and to compensate for this, when in the Sanatoria, all children whether admitted for observation or treatment, have the faeces examined for acid fast bacilli, and are submitted to a Von Pirquet or intradermal tuberculin test. All adult patients who enter observation pavilions have a blood sedimentation test undertaken, and have the faeces examined for acid fast bacilli.

Acid fast bacilli in the faeces of children are only discovered amongst our patients in a small percentage of the specimens examined, but, when present, a large percentage prove to be tubercle bacilli after animal inoculation.

ADULTS.

	Newly notified patients.	Contacts and Suspects.
Tubercle Bacilli present	443	138
Tubercle Bacilli absent	283	700
No Sputum	226	435

CHILDREN.

	Newly notified patients.	Contacts and Suspects.
Tubercle Bacilli present	4	—
Tubercle Bacilli absent	20	188
No Sputum	123	595

LABORATORY WORK—YARDLEY ROAD SANATORIUM AND THE CENTRE.

At the Sanatorium 2,832 specimens of urine and 5,710 specimens of sputum were examined during the year. Of the sputum specimens examined 1,990 presented tubercle bacilli after staining alone, and the remaining specimens were tested by the sedimentation method devised by Ellerman and Erlandsen. Of these 1,183 or 31 per cent. were found to contain tubercle bacilli; these were not found in every instance after one examination, and in some instances the test had to be repeated on several occasions before a positive result was obtained, as shown in the following table:—

Tubercle Bacilli	found	after	1st	sedimentation	in	814	instances.
,,	,,	,,	,,	2nd	,,	,, 310	,,
,,	,,	,,	,,	3rd	,,	,, 45	,,
,,	,,	,,	,,	4th	,,	,, 14	,,

In the Laboratory at the Centre during the year 6,029 specimens of sputum were examined; 38 other specimens were also examined. Of sputum specimens, 1,409 which were previously negative after one staining, were examined by the concentration method of Davis, the results being as follows:—

Tubercle Bacilli	demonstrated	after	1st	concentration	...	39
,,	,,	,,	,,	2nd	,,	...	6
,,	,,	,,	,,	3rd	,,	...	Nil.

COMPLETED CASES.

During the year 2,205 patients completed a course of treatment or supervision, etc., at the Centre, of whom 1,792 were adults and 413 were children.

In the next table the working capacity at the commencement, and at the end of a completed period of treatment is given for those old patients who were examined during the year. The group of disease quoted was determined at the first examination.

WORKING CAPACITY OF PATIENTS ATTENDING CENTRE.

	GROUP I.		GROUP II.		GROUP III.		GROUP IV.	
	Adults	Children	Adults	Children	Adults	Children	Adults	Children.
Unimpaired working capacity becoming impaired ...	1	1	2	—	2	1	1	1
Unimpaired working capacity becoming totally incapacitated	—	—	—	—	—	—	—	—
Unimpaired Working capacity persisting	11	3	1	—	—	—	5	6
Impaired Working capacity becoming unimpaired ...	242	104	162	58	12	2	11	45
Impaired capacity for work becoming totally incapacitated	5	—	61	3	22	—	1	—
Impaired capacity for work persisting	200	70	556	33	120	8	27	20
Total incapacity becoming impaired	13	5	100	14	91	5	22	7
Total incapacity becoming unimpaired	13	7	36	9	16	2	6	7
Total incapacity persisting	1	—	10	—	36	1	6	1
	486	190	928	117	299	19	79	87

AFTER CARE.

In the following tables are set out, as briefly as possible, the main points in connection with an investigation undertaken to ascertain the conditions of those past patients who received treatment at the Centre between the years 1913-1929 inclusive.

PRESENT CONDITION OF PATIENTS TREATED IN PREVIOUS YEARS SHOWING CONDITION OF THOSE WHO WERE TREATED FOR PULMONARY TUBERCULOSIS.

Pulmonary Tuberculosis. Present Condition of Patients Treated in Previous Years.			Previous to 1926.					1926.					1927.					1928.					1929.				
				Class T.B. plus.					Class T.B. plus.					Class T.B. plus.					Class T.B. plus.					Class T.B. plus.			
			Class T.B. minus.	Group I.	Group II.	Group III.	Total (Class T.B. plus).	Class T.B. minus.	Group I.	Group II.	Group III.	Total (Class T.B. plus).	Class T.B. minus.	Group I.	Group II.	Group III.	Total (Class T.B. plus).	Class T.B. minus.	Group I.	Group II.	Group III.	Total (Class T.B. plus).	Class T.B. minus.	Group I.	Group II.	Group III.	Total (Class T.B. plus).
Alive.	Discharged as Cured.	Adults M.	1,046	92	146	36	274	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Adults F.	1,163	59	90	26	175	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Children M.	777	15	5	2	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Children F.	682	11	8	6	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Disease Arrested.	Adults M.	439	33	70	29	132	40	2	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Adults F.	400	16	31	13	60	2	—	2	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Children M.	198	1	2	3	6	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Children F.	189	7	4	4	15	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Disease Not Arrested.	Adult M.	453	96	240	211	547	36	6	72	18	96	75	23	94	27	144	81	22	118	31	171	141	36	165	73	274
		Adult F.	562	66	126	121	313	113	9	41	12	62	66	5	57	6	68	71	13	74	22	109	117	18	111	60	189
		Children M.	211	2	1	5	8	28	1	—	—	1	61	—	2	—	2	35	—	—	—	—	51	—	—	—	—
		Children F.	189	3	4	2	9	—	1	—	2	3	42	1	1	1	3	31	—	2	1	3	47	—	1	—	1
	Lost Sight of or otherwise removed from Dispensary Register.		1,769	172	245	163	580	34	—	11	10	21	19	1	13	2	16	21	4	15	11	30	17	2	7	4	13
	Dead.	Adults M.	815	134	671	1,349	2,154	47	7	81	170	258	28	1	100	148	249	34	4	79	131	214	16	1	28	96	125
		Adults F.	586	50	261	672	983	60	4	63	114	181	50	3	45	113	161	23	3	55	85	143	9	1	18	53	72
		Children M.	74	3	2	14	19	13	—	1	2	3	5	—	—	—	—	—	—	—	1	1	3	1	—	1	2
		Children F.	80	2	6	24	32	5	—	1	5	6	3	—	—	6	6	3	—	1	4	5	1	—	—	4	4
Totals			9,633	762	1,912	2,680	5,354	409	30	273	334	637	349	34	312	303	649	299	46	344	286	676	402	59	330	291	680

PRESENT CONDITION OF PATIENTS TREATED IN PREVIOUS YEARS SHOWING CONDITION OF THOSE WHO WERE TREATED FOR NON-PULMONARY TUBERCULOSIS.

Non-Pulmonary Tuberculosis.			Previous to 1926.					1926.					1927.					1928.					1929.				
Present Condition of Patients Treated In Previous Years.			Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.
Alive.																											
Discharged as Cured.	Adults	M.	3	—	—	1	4	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		F.	2	—	1	5	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Children	M.	2	5	2	7	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		F.	—	1	—	14	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Disease Arrested.	Adults	M.	2	6	1	1	10	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—
		F.	1	3	1	1	6	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Children	M.	2	2	1	7	12	2	—	—	6	8	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
		F.	2	2	2	8	14	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Disease Not Arrested.	Adults	M.	18	3	1	4	26	15	2	1	1	19	11	1	2	1	15	6	3	5	4	18	19	4	6	3	32
		F.	15	2	3	7	27	6	1	7	3	17	11	7	6	4	28	4	1	2	7	14	7	5	8	6	26
	Children	M.	3	10	5	14	32	8	1	1	13	23	7	3	—	7	17	4	10	2	12	28	13	8	2	10	33
		F.	8	5	3	25	41	6	2	—	7	15	2	4	1	4	11	5	1	1	7	14	11	4	2	13	30
Transferred to Pulmonary			2	2	1	5	10	—	1	—	2	3	1	—	—	1	2	—	—	1	—	1	—	—	—	—	—
Lost sight of or otherwise removed from Dispensary Register.			5	5	4	12	26	2	2	—	4	8	4	4	1	—	9	—	1	—	1	2	1	—	—	1	2
Dead.	Adults	M.	9	2	4	—	15	2	2	—	—	4	2	1	—	—	3	5	—	—	1	6	—	1	—	—	1
		F.	8	2	1	2	13	1	—	—	—	1	—	—	1	1	2	—	—	1	1	2	—	1	—	—	1
	Children	M.	4	5	—	—	9	—	1	—	1	2	—	—	—	—	—	1	—	—	—	1	—	2	1	—	3
		F.	2	1	1	2	6	—	1	—	—	1	—	3	—	—	3	—	—	—	—	—	1	1	—	—	2
Totals			88	56	31	115	290	42	14	9	39	104	38	23	11	19	91	26	16	12	33	87	52	26	19	33	130

Radiological Work.

Radiography in connection with the differential diagnosis of pulmonary disease is as essential as the examination of sputum, when present, if correct conclusions are to be reached. It cannot take the place of other methods of diagnosis but by the combined use of clinical, laboratory, and radiological facilities, errors in diagnosis may be reduced.

It is of equal importance in the diagnosis of bone and joint disease, and where it is systematically used in this connection, the percentage of errors will be lessened.

In addition, the doctor will most probably make a more careful clinical examination and diagnosis after committing himself to a graph record, when he knows that an x-ray examination will immediately follow, and he will have to compare the results with those of his physical examination.

Radiology is essential, too, in association with the treatment of pulmonary tubercle by means of artificial pneumothorax, which we have now practised for many years past. In some pulmonary diseases, after the injection of " lipiodol " into the bronchial system, radiology can be advantageously used in differential diagnosis.

Summary.

1. There was a decrease in the number of patients' attendances during the year 1929 as compared with 1928.
2. No less than 80.1 per cent. of the total number notified in the City during the year as suffering from pulmonary tuberculosis were examined at the Centre.
3. 991 patients were visited and examined in their own homes.
4. During the year, no less than 3,437 screen examinations were made in the radiography section, and films were taken in 1,174 cases.
5. Amongst adult patients, suffering from tuberculosis, 61 per cent. presented tubercle bacilli in their sputum, and amongst the children 2.7 per cent.
6. Of the patients treated during the periods 1913-1928, some 7,996 presented tubercle bacilli in their sputum. Of this number 34 per cent. are known to be still alive, 57.7 per cent. are known to be dead, and 8.2 per cent. have been lost sight of.
7. During the same periods, 11,092 patients whose sputum contained no tubercle bacilli, were treated. Of this number, 66.5 per cent. are known to be still alive, 16.7 per cent. are known to be dead and 16.8 per cent. have been lost sight of.

SANATORIA FOR TUBERCULOSIS.

(Report by Dr. G. B. Dixon, Chief Clinical Tuberculosis Officer).

The Birmingham Public Health Committee has 597 beds available for the treatment and prevention of pulmonary, and other forms of tuberculosis, and for the observation of suspected cases of tubercle. These beds are distributed in four different sanatoria, namely, Yardley Road Sanatorium, West Heath Sanatorium, Salterley Grange Sanatorium, near Cheltenham, and Romsley Hill Sanatorium, Halesowen. The Yardley Road Sanatorium is situated in a suburban part of the City, about 3½ miles from its centre, and has accommodation for 325 patients; the beds are available for male and female adults and children. There are 154 beds for male adults, 10 of which are reserved for the admission of patients for observation purposes, and the remainder are utilised for the treatment of those in the intermediate and advanced stages of tuberculosis. There are 52 beds provided for female adults, including 8 beds reserved for observation purposes. The female patients admitted are those in the early and intermediate stages of tuberculosis. There are 119 beds for the treatment of children, and included in those are 18 beds available for the purpose of observation. Children in all stages of tuberculosis are admitted, and a number of beds are occupied by patients suffering from bone, joint, glandular and abdominal tuberculosis.

In addition to patients treated in the City Sanatoria, 37 cases were admitted to the Royal Cripples' Hospital, 22 to the Childrens' Hospital, 20 to the Moseley Hall Convalescent Home and one to the General Hospital. All of these patients were suffering from the non-pulmonary forms of tuberculosis, and many required surgical treatment. A grant towards the maintenance of these patients was made by the Public Health Committee.

The West Heath Sanatorium is situated about 6 miles from the centre of the City; it contains 116 beds, 92 of which are set apart for the treatment of female adult patients suffering from advanced tuberculosis, while 24 beds are available for male adults.

The Salterley Grange Sanatorium with 68 beds is situated in the Cotswold Hills, about 3½ miles from Cheltenham, and has accommodation for 38 males and 30 females. The patients selected are all of adult age, and are the most promising from a medical standpoint of all our patients, the majority suffering from tuberculosis in an early stage.

Romsley Hill Sanatorium is situated in the Clent Hills, 11 miles from the centre of the City, and has accommodation for 59 males and 29 females. Those in all stages of the disease are admitted.

Admission to these different Sanatoria is arranged by the staff of Tuberculosis Officers, after examination of the patients at the Municipal Anti-Tuberculosis Centre, 44a Broad Street. The treatment given to patients in the Sanatoria is on similar lines, and includes hygienic and dietetic treatment, graduated rest, exercise and occupation, the employment of appropriate drugs when indicated, or specific treatment by means of the various tuberculins and vaccines, etc. Natural and artificial heliotherapy, and artificial pneumothorax are undertaken in suitable cases.

In all of the municipal sanatoria particular attention is paid to the question of occupational therapy with the object of interesting, and employing suitably, a certain number of the patients whose condition admits of it. The fitness of the patient to engage in occupational therapy is always judged by the medical officer, who has the patient under constant supervision. The occupation to be followed and the number of hours to be devoted to it are both decided upon by the doctor after careful consideration. At Salterley Grange Sanatorium, the physical condition of the patients is usually so good and their disease so early that temporary employment suitable to their needs can be found in the gardens and upon the estate. At West Heath and Yardley Road Sanatoria, particularly in the latter, facilities for occupational therapy have existed for many years, and will shortly be increased. At West Heath the patients are employed in basket making. At Yardley Road, they are engaged in basket making, leather work of different kinds and in mat making, etc. It is hoped that any patient who is unfitted to return to work in competitive industry and who is capable of working in the sanatorium shops for five or six hours daily, after receiving instruction as a residential patient, may shortly be enabled to return to the sanatorium to work and be placed on a profit-sharing basis. Such a scheme is in contemplation and will come into operation shortly. It will present difficulties, and will take time to establish, but there is a definite need for such an arrangement, and the difficulties should not be insuperable. Classes for the teaching of basket and leather work have also been started at the Romsley Hill Sanatorium.

Total Numbers Treated in the Sanatoria and Duration of Stay.

During the year 1929 there were 1,856 patients discharged from all the Sanatoria. Included in this number are 62 patients suffering from surgical tuberculosis who have been treated in Institutions subsidised by the Health Department. Of this number 929 were adult males, 618 were adult females, 166 were male children and 143 were female children.

The average duration of stay, excluding those admitted for observation and who, proving negative, remained only for a short time, and excluding those hospital cases with advanced disease who died within a few days of their admission, was 121.62 days for adult males, 134.98 for adult females, and 264.4 days for children.

Results of Treatment of Patients and of Observation of Doubtful Cases Discharged from Residential Institutions During the Year 1929.

Classification on admission.	Condition at time of discharge.	Duration of Residential Treatment. Under 3 months. M.	F.	Ch.	3—6 months. M.	F.	Ch.	6—12 months. M.	F.	Ch.	More than 12 months. M.	F.	Ch.	Total
Class T.B. minus.	Quiescent	66	41	12	29	16	31	2	5	20	—	—	11	233
	Improved	54	50	8	15	18	12	2	7	9	—	1	5	181
	No material improvement	11	5	6	1	3	—	—	2	1	—	—	—	29
	Died in Institution ...	17	2	—	—	3	1	—	—	—	1	—	—	24
Class T.B. plus. Group I.	Quiescent	7	5	—	3	—	—	—	—	—	—	—	—	15
	Improved	10	4	—	6	2	—	2	4	—	—	—	—	28
	No material improvement	1	—	—	1	—	—	—	1	—	—	—	—	3
	Died in Institution ...	1	—	—	—	—	—	—	—	—	—	—	—	1
Class T.B. plus. Group II.	Quiescent	12	2	—	4	3	—	—	—	—	—	—	—	21
	Improved	145	67	1	50	38	—	15	12	1	3	2	—	334
	No material improvement	28	13	—	20	13	—	7	8	—	—	3	—	92
	Died in Institution ...	18	14	—	8	3	—	6	1	3	3	1	—	57
Class T.B. plus. Group III.	Quiescent	1	3	—	—	2	—	2	—	—	—	2	—	10
	Improved	71	37	—	20	30	—	12	13	—	1	5	1	190
	No material improvement	44	19	1	9	17	—	8	10	—	2	1	—	111
	Died in Institution ...	95	54	4	25	13	—	5	7	—	1	4	2	210
Bones & Joints.	Quiescent or arrested ...	1	3	3	3	1	3	4	1	9	9	4	32	73
	Improved	3	2	9	1	—	4	1	—	—	—	—	—	20
	No material improvement	—	1	9	—	—	—	—	—	1	—	—	—	11
	Died in Institution ...	1	—	1	—	—	—	—	—	—	1	—	—	3
Abdominal.	Quiescent or arrested ...	1	—	1	—	—	2	—	—	1	—	—	1	6
	Improved	—	—	1	—	—	—	—	—	—	—	—	—	1
	No material improvement	1	2	1	—	—	—	—	—	—	—	—	—	4
	Died in Institution ...	—	—	2	—	—	—	—	—	—	—	—	—	2
Other Organs.	Quiescent or arrested ...	—	—	—	1	—	—	—	—	—	—	—	—	1
	Improved	2	4	—	—	—	1	—	—	—	—	—	—	7
	No material improvement	—	—	—	—	—	—	—	—	—	—	—	—	—
	Died in Institution ...	—	—	—	—	—	—	—	—	—	—	—	—	—
Peripheral Glands.	Quiescent or arrested ...	2	—	—	2	—	5	—	—	4	—	—	1	14
	Improved	—	1	2	—	—	2	—	2	2	1	—	—	10
	No material improvement	—	—	—	—	—	—	—	—	—	—	—	—	—
	Died in Institution ...	—	—	—	—	—	—	1	—	—	—	—	—	1

		Under 1 week.			1—2 weeks.			2—4 weeks.			More than 4 weeks.			
Observation for Purpose of Diagnosis.	Tuberculous ...	5	2	1	3	4	7	17	10	36	14	14	22	135
	Non-Tuberculous	2	—	—	14	—	3	30	7	58	1	23	18	156
	Doubtful ...	—	1	—	3	—	4	—	—	—	—	—	—	8

Note.—" Quiescent." Cases which have no symptoms of tuberculosis and no signs of tuberculous disease except as are compatible with a completely healed lesion, and in which sputum, if present, is free from tubercle bacilli.

" Improved." Cases short of " quiescent " in which the general health is fair and the symptoms of tuberculosis have materially diminished.

" No material improvement." All other patients who are alive.

Observation Patients.

The beds reserved for the purpose of observation are at the Yardley Road Sanatorium, and vary in number from time to time, the average being about 30. Observation patients are those who, after careful and repeated examinations at the Centre, are found to be indefinite, either as to the absence or presence of tuberculosis, or as to its activity or otherwise when present, and are usually admitted for a period varying from two to four weeks. Of the 1,856, 299 or 16.11 per cent. were admitted primarily for observation to Yardley Road Sanatorium. The medical findings are shown at the foot of the previous table.

Classification of Patients' Disease.

In this table the patients are scheduled according to the classification of the Ministry of Health, as follows:—

Group I. Cases with slight constitutional disturbance, if any, e.g., there should not be marked acceleration of pulse nor elevation of temperature, except of very transient duration; gastro-intestinal disturbance or emaciation, if present, should not be excessive.

The obvious physical signs should be of very limited extent, as follows:—Either present in one lobe only and in the case of an apical lesion of one upper lobe not extending below the second rib in front or not exceeding an equivalent area in any one lobe; or where these physical signs are present in more than one lobe, they should be limited to the apices of the upper lobes and should not extend below the clavicle and the spine of the scapula.

No complication (tuberculous or otherwise) of prognostic gravity should be present. A small area of dry pleurisy should not exclude a case from this group.

Group III. Cases with profound systemic disturbance or constitutional deterioration; with marked impairment of function either local or general, and with little or no prospect of recovery.

All cases with grave complications, whether tuberculous or not, should be classified in this group, e.g., diabetes, tuberculosis of larynx or intestine, etc.

Group II. All cases which cannot be placed in Groups I. and III.

Patients suffering from non-pulmonary tuberculosis are classified according to the site of the lesion and are placed under Group IV.

Sputum.

Excluding the 81 observation patients with no active signs from the total number of adult patients discharged from the Sanatoria suffering from pulmonary tuberculosis during the year, 1,056 or 68.93 per cent. presented tubercle bacilli in their sputum whilst in the Sanatoria.

Sanatoria	No sputum persisting	No sputum becoming T.B.—	No sputum becoming T.B.+	T.B.— persisting	T.B.— becoming T.B.+	T.B.— becoming no sputum	T.B.+ persisting	T.B.+ becoming T.B.—	T.B.+ becoming no sputum	Totals	
Yardley Road	30	3	4	86	24	25	269	22	6	469	Adult Males.
Sanatorium	38	1	3	27	5	10	59	12	4	159	Adult Females.
	142	2	—	10	2	6	7	—	1	170	Children.
										164	Negative Diagnosis.
										962	
Romsley Hill	1	1	3	33	9	1	124	12	4	188	Adult Males.
Sanatorium	7	2	4	9	2	1	47	8	3	83	Adult Females.
	1	1	—	—	—	—	—	—	—	2	Children.
										273	
Salterley	10	—	—	6	—	24	50	10	23	123	Adult Males.
Grange	33	—	—	1	—	7	36	2	15	94	Adult Females.
Sanatorium	—	—	—	1	—	—	—	—	—	1	Children.
										218	
West Heath	3	—	—	4	2	2	53	26	4	94	Adult Males.
Sanatorium	3	—	1	20	1	6	159	34	17	241	Adult Females.
	—	—	—	1	—	—	4	1	—	6	Children.
										341	

Occupations.

In the following table the occupations of both male and female adult patients are shown :—

	Males.	Females.
Out-door occupations	94	7
Domestic Occupations	13	277
Sedentary Occupations	63	64
Commercial Occupations	36	17
Engineering Occupations	217	77
Metal trade	172	59
Building trade	69	2
Other trades	260	105
	924	608

Illnesses Prior to Admission.

In 127 or 8.29 per cent. instances adult patients had a history of having suffered from pleurisy at periods varying from one to twelve years prior to their examination by us. In 92 or 6 per cent. of the adult patients there was a history of pneumonia having occurred from one to twelve years previously. Large numbers of patients attributed the onset of their tuberculosis to an attack of influenza, and in the case of many of our child patients measles appears frequently as a probable predisposing cause of tuberculosis.

Gain or Loss in Weight.

Amongst a total of 1,794 patients discharged from Sanatoria, many of whom were advanced hospital cases, having been admitted for the purpose of prophylaxis, 132 or 7.35 per cent. remained stationary, and 1,113 or 62.04 per cent. gained weight in amounts varying from one to fifty pounds.

Working Capacity of Patients Treated in Sanatoria.

The working capacity of patients is shown in the following table :—

	Adult Males.	Adult Females.	Children.	Totals.
Unimpaired capacity for work becoming impaired ...	1	—	1	2
Unimpaired capacity for work becoming totally incapacitated	—	—	—	—
Unimpaired capacity for work persisting	2	—	—	2
Impaired capacity for work becoming unimpaired ...	74	63	56	193
Impaired capacity becoming totally incapacitated ...	33	28	4	65
Impaired capacity persisting	430	241	79	750
Total incapacity becoming impaired	125	86	19	230
Total incapacity becoming unimpaired	3	17	4	24
Total incapacity persisting	28	38	2	68
Died in Sanatoria	178	104	14	296
No active signs	50	31	83	164
	924	608	262	1,794

Summary.

The average duration of patients' stay for all the Sanatoria was 121.6 days for adult males, 134.9 for adult females, and 264.4 days for children.

Of the patients from all Sanatoria no less than 299 or 16.1 per cent. had passed through the observation beds at Yardley Road Sanatorium.

Over 36.8 per cent. of the patients discharged were in Group III., 42 per cent. were in Group II., 15.5 per cent. were in Group I., and 5.7 per cent. were in Group IV.

There were 68.9 per cent. of the total definite patients who presented tubercle bacilli in their sputum whilst in the Sanatoria. The number who showed bacillary loss, decided after three examinations, was 204 or 19 per cent.

Over 62 per cent. of all patients discharged from Sanatoria gained weight in amounts varying from one to fifty pounds; only 7.3 per cent. remained stationary.

Some 296 patients died in " hospital " beds in the various Sanatoria. This represents 32.4 per cent. of the total deaths from pulmonary tubercle occurring in the City during the year.

TREATMENT IN THE LIGHT CLINIC, CITY SANATORIUM, YARDLEY ROAD.

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

Staff.

The Clinic is open on five days weekly, from 9 a.m. until 6 p.m. and on Saturdays from 9 a.m. until 2 p.m. and there are Evening Sessions on Mondays, Wednesdays, and Fridays, from 6 p.m. until 8.30 p.m. for patients who are able to follow their employment.

The Clinic is utilised for the treatment of patients resident in the Sanatorium, and for those who are out-patients at the Anti-Tuberculosis Centre, many of the latter having previously been residential patients in the Sanatoria. Every patient treated in the Light Clinic is suffering from some form of tuberculosis, such as tuberculosis of the glands, abdomen, lupus, larynx, etc.

Source of Artificial Light.

The artificial light is derived from four open flame carbon-arc lamps, consuming 75 amperes. Direct current is used, and the voltage is sixty-five.

Two lamps are used in each light treatment room. In one room they are fitted with non-cored carbons. The period of exposure to this lamp for a general bath, as a maximum, may be from one to two hours. The spectrum of light from this lamp is said to approximate more nearly to the spectrum of sunlight than that of many other lamps. These lamps are used as a general bath, the whole body being exposed.

In many cases of tuberculosis, where the lesion is a superficial one, as in the cases of lupus vulgaris, ulcerations and sinuses, the local application of artificial light in association with the general bath will be found to give better results than are usually obtained from general or local irradiations alone.

For local irradiation, we utilise a tungsten and carbon-arc lamp of 5 amps. with a voltage of 220, the light from which is concentrated through a quartz lens.

Pulse and Temperature Readings.

Treatment by means of the general light baths, as a rule, produces no effect upon the pulse and temperature records of our patients. Occasionally increases in pulse rate, and a rise of temperature have been noted after treatment, but in most instances they have been transient. Such rises are more likely to occur where pulmonary tuberculosis is an associated lesion.

The marked improvement which occurs in the muscular tone of immobilised limbs after ultra-violet irradiation is noticeable.

In association with the treatment of lupus vulgaris by means of ultra-violet irradiation other forms of treatment for this disease should not be ignored. We have found in many of these cases that the local application of liquor hydrargyri nitratis is of benefit.

The tendency to regard the application of artificial light to those suffering from tuberculosis as a complete method of treatment in itself, should be guarded against. The best results can only be obtained when it is associated with other forms of treatment.

It is well to remember, too, that whatever treatment is used for tuberculosis, it must be undertaken before the disease is advanced, whilst the patient is capable of response, and it must be of long duration, irrespective of the site of the lesion, if good results are to be anticipated. Sufferers from laryngeal tuberculosis cannot be excused from the prolonged observation of silence, or the use of the cautery, nor can those with bone and joint tuberculosis be relieved from the tedium of immobilisation because of actinotherapy.

Patients Completing Treatment During 1929.

The total number of patients discharged or completing treatment during the year 1929, was eighty-two. This number includes twenty-six adult males, twenty-seven adult females, twenty male children, and nine female children. Of these patients seventy-one completed a satisfactory course of treatment, one of whom has since died, eleven failed to complete a satisfactory course of treatment for one reason or another, and one of these has since died.

Of those who completed a satisfactory course of treatment during the year, thirty-four were cases of bone and joint tuberculosis, five suffered from abdominal forms of tuberculosis, nineteen were the subjects of peripheral adenitis and thirteen suffered from tuberculosis in other organs.

In a majority of instances, our patients received their initial artificial light treatment and Sanatorium treatment concurrently, and many, after discharge from the Sanatorium, continued to attend the Light Clinic as out-patients.

PATIENTS WHO SATISFACTORILY COMPLETED A COURSE OF LIGHT TREATMENT PREVIOUS TO 1929

			1925						1926						1927						1928						
			Other Organs.	Lupus.	Peripheral Glands.	Larynx and P.T.	Abdominal.	Bones and Joints.	Other Organs.	Lupus.	Peripheral Glands.	Larynx and P.T.	Abdominal.	Bones and Joints.	Other Organs.	Lupus.	Peripheral Glands.	Larynx and P.T.	Abdominal.	Bones and Joints.	Other Organs.	Lupus.	Teripheral Glands.	Larynx and P.T.	Abdominal.	Bones and Joints.	
Discharged as CURED.	Adults	M.	—	—	—	—	—	1	—	—	1	—	1	1	—	—	—	1	—	—	—	—	—	—	—	—	5
	,,	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	2
	Children	M.	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
	,,	F.	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Disease ARRESTED.	Adults	M.	1	1	—	—	1	2	—	—	1	3	1	—	—	—	2	—	—	2	—	—	—	—	—	1	15
	,,	F.	1	—	1	—	—	2	—	—	—	2	1	2	—	—	—	—	—	—	—	—	—	—	2	—	11
	Children	M.	—	1	—	—	1	2	—	—	3	—	1	2	—	—	2	—	2	2	—	1	—	—	—	1	18
	,,	F.	—	—	3	—	—	2	—	1	2	—	—	—	—	—	—	—	2	—	—	—	—	—	—	1	11
Disease QUIESCENT.	Adults	M.	—	—	—	—	—	2	—	1	1	1	—	2	—	—	—	2	2	6	—	—	1	—	—	4	22
	,,	F.	—	—	—	—	—	1	—	—	1	3	—	2	—	1	3	1	—	4	—	2	2	1	1	3	25
	Children	M.	—	—	2	—	—	1	1	—	2	—	—	—	—	—	2	—	1	3	—	—	—	—	2	1	15
	Female	F.	—	—	—	—	—	2	—	—	3	—	—	—	—	2	1	—	—	2	—	—	—	—	2	1	13
Disease NOT QUIESCENT.	Adults	M.	—	—	—	1	—	—	2	—	1	—	—	3	1	—	—	1	—	2	—	1	—	1	—	1	14
	,,	F.	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	1	—	1	—	—	4
	Children	M.	—	1	1	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	4
	,,	F.	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	6
DEAD.	Adults	M.	2	2	—	—	—	1	—	1	—	1	—	2	—	—	—	—	1	3	—	—	—	2	—	2	17
	,,	F.	—	—	1	—	—	—	—	—	—	4	—	2	—	—	—	—	—	—	—	—	—	1	—	—	8
	Children	M.	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	2
	,,	F.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LOST SIGHT OF, etc.	Adults	M.	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	1	4
	,,	F.	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	1	2	6
	Children	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	2
	,,	F.	—	—	—	—	—	1	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	3
TOTALS			4	7	11	1	2	17	3	8	16	14	6	20	2	4	11	7	10	25	—	6	3	6	9	19	211

Treatment Must be Prolonged.

It is always an advantage if the initial period of artificial light treatment is associated with Sanatorium treatment. In most instances of tuberculous disease a course of artificial light treatment extending over a period of less than six months will not produce any very satisfactory results. In many instances treatment must be continued for eighteen months to two years, when exposures are given on alternate days.

Length of Treatment and Number of Exposures.

The average length of time during which our " completed " patients received artificial light treatment was approximately 77.7 weeks, and the average number of exposures was 201.7, and the average gain in weight in each case was 6.3 lbs.

Patients Who Did Not Complete Treatment.

The patients who discontinued treatment for various reasons numbered eleven, they included cases of tuberculosis of the bones and joints, of lupus vulgaris, of the peripheral glands, and of the larynx and genito-urinary tract.

On the 31st December 1929, one hundred and eighty-one patients were continuing their treatment in the Light Clinic, and many showed an improvement in their condition.

Cost of Current.

The cost of current for the working of the Light Clinic was 1s. 6.63d. per hour.

VENEREAL DISEASES.

The following table shows the number of new cases of Syphilis and Gonorrhœa treated at the Treatment Centres each year since 1918 :—

	New cases of Syphilis.				New cases of Gonorrhœa.			
Year.	Male.	Female.	Children.	Total.	Male.	Female.	Children.	Total.
1918 ...	**502**	**355**	—	**857**	**588**	**100**	—	**688**
1919 ...	**782**	**459**	—	**1,241**	**1,399**	**187**	—	**1,586**
1920 ...	**704**	**441**	—	**1,145**	**1,190**	**185**	—	**1,375**
1921 ...	**423**	**343**	—	**766**	**825**	**131**	—	**956**
1922 ...	**220**	**237**	—	**457**	**628**	**83**	—	**711**
1923 ...	**296**	**239**	—	**535**	**666**	**89**	—	**755**
1924 ...	291	301	18?	610	**691**	**73**	**5**	**769**
1925 ...	277	240	23?	540	**667**	**220**	**5**	**892**
1926 ...	231	270	43?	544	**692**	**185**	**7**	**884**
1927 ...	278	298	62?	638	**660**	**289**	**26**	**975**
1928 ...	245	306	56?	607	781	348	29	1,158
1929 ...	221	214	108	543	858	371	16	1,245

Note.—About 90 per cent. of these cases are Birmingham residents.

The apparent increase in the number of children found to have syphilis is somewhat misleading. The data for preceding years have been found to be unreliable, as in some of the institutions to which this table refers the particulars as to children were incompletely separated from those referring to adults. This has been, so far as practicable, remedied for 1929.

The Clinics at which these persons were treated in 1929 were as follows :—

	New cases of Syphilis	New cases of Gonorrhœa.	Total new cases.	Total attendances.
General Hospital ... ... (for men, women and children)	374	932	1,306	69,719
Children's Hospital ... (for children only)	18	9	27	781
Aston Street Clinic ... (for mothers and babies)	151	304	455	5,887

Particulars of the cases treated during 1929 are given below :—

	Syphilis.	Gonorrhœa.
Total number of new cases	543	1,245
Total number of attendances	23,201	53,186
Aggregate number of in-patient days	683	1,309
Ceased attendance before completion of treatment ...	266	471
Ceased attendance after completion of treatment, but before final tests	80	350
Transferred to other Centres after treatment ...	28	77
Discharged or died after completion of treatment and observation	34	250
Number of patients under treatment or observation on January 1st, 1930	1,393	1,756

During the autumn the new block for the treatment of venereal diseases was opened at the General Hospital. The block has come into full use. On the ground floor it consists of an out-patient department for male and for female cases in separate sections, on the most modern plan, with consultation rooms, and facilities for irrigation and for diathermy. On the first floor are provided two small wards for men and for women respectively, detained in hospital for treatment. The whole block will be of the greatest benefit in the treatment and control of venereal diseases.

CITY BACTERIOLOGICAL LABORATORY.

The following return of work done at the Laboratory has been supplied by Dr. Henry, the City Bacteriologist.

ANNUAL RETURN FOR YEAR ENDING DECEMBER 31ST, 1929.

Diphtheria Swabs	17,839
Fæces	300
Milks	1,662
Shell Fish	88
Sputum for Tubercle Bacilli	2,494
Vaccines	11
Venereal Diseases	24,467
Waters	400
Widals for Enteric Fever	279
Miscellaneous	1,656
	49,196

REPORT ON THE CITY HOSPITALS FOR THE YEAR 1929.

(By DR. E. H. R. HARRIES, Medical Superintendent).

Owing to the prevalence of scarlet fever in the last quarter of the year and the record number of admissions of cases notified as suffering from diphtheria, the hospitals had a very busy year.

NEW BLOCKS.

In May, the new I. block (I.1 and I.2) was completed and immediately occupied; J block (J.1 and J.2) was not ready for occupation until September. I.1 and J.1 wards are both equipped with operating theatres. I.1, which is a bed isolation ward, possesses also an X-ray room and is thus a self-contained unit, fitted, not only for nursing in the same ward a variety of infective conditions without danger of cross-infection, but also for the treatment of any surgical emergency which may arise amongst women and children patients. The theatre of J.1 ward is held in reserve; in time of pressure, it has been used as a theatre for tracheotomy. Ordinarily, the operation of tracheotomy is performed in the theatre attached to B. ward.

WITTON HOSPITAL.

Except for a few weeks in the year, when it was possible to release one of the older wards at a time for wiring and re-painting, all the wards have been very full throughout the year. During the first six weeks of the year, the Taplow wards at Witton Hospital received convalescent scarlet fever patients transferred from Little Bromwich. That hospital was then closed. A small-pox ward there had to be opened in April and again in May for the reception of two cases of mild small pox. The institution was again closed in July. It became necessary to open the Taplow wards in October for the reception of scarlet fever. These wards have remained open since and, usually, have been very full.

OTOLOGIST.

The resignation of Mr. F. Brayshaw Gilhespy, the Visiting Otologist, took place at the end of March, owing to pressure of other professional work. Mr. Gilhespy was amongst the earliest of the Aural Surgeons to be attached to Fever Hospitals. He did much valuable work upon otitis in scarlet fever, particularly valuable, perhaps, was the working out by him of those varieties of damage to the ear drum in that disease which could be successfully treated by conservative measures; those for which some form of operative treatment was called for; and those for which only palliative treatment was possible.

Operating Surgeons.

Taking into consideration the increasing amount of general surgical work—consultative and operative—in the hospital, work which called for the service of a consulting operative surgeon engaged upon a "fee basis," the Committee decided, when the resignation of the Aural Surgeon took effect, upon the appointment of two general operating surgeons to the staff of the hospital. The two surgeons appointed, named Mr. W. Gemmill, F.R.C.S., Assistant Surgeon to the Queen's Hospital, and Mr. R. Scott Mason, F.R.C.S., Assistant Surgeon to the General Hospital, are "on call" in alternate weeks. Other than tracheotomy and paracentesis, they undertake, between them, all the consultative and operative work in the hospital, including operations upon mastoid and the removal of tonsils and adenoids. This arrangement has worked very smoothly and very successfully.

Statistics.

The following tables shew the number of direct admissions and transferred cases during the calendar year.

The figures in these tables have *not been revised for diagnosis*. The revised figures for the main diseases admitted are set out in subsequent sections of the report.

Table 1.

(a) Diphtheria (Uncorrected for diagnosis).

	Little Bromwich.	Witton.	Total.
In hospital on December 31st, 1928	310	1	311
Admitted during 1929	2,099	0	2,099
Transfers during 1929	0	7	7
Discharged during 1929	1,965	8	1,973
Died during 1929	91	0	91
Remaining on December 31st, 1929	353	0	353

(b) Scarlet Fever (Uncorrected for diagnosis).

	Little Bromwich.	Witton.	Total.
In hospital on December 31st, 1928	116	25	141
Admitted during 1929	1,709	61	1,770
Transfers during 1929	0	227	227
Discharged during 1929	1,623	242	1,865
Died during 1929	5	0	5
Remaining on December 31st, 1929	197	71	268

(c) Miscellaneous Infections (All admitted to Little Bromwich).

In hospital on December 31st, 1929	4
Admitted during 1929	157
Discharged during 1929	136
Died during 1929	10
Remaining on December 31st, 1929	15

(d) Smallpox (Admitted to Witton).

In hospital on December 31st, 1928	0
Admitted during 1929	2
Discharged during 1929	2
Died during 1929	0
Remaining on December 31st, 1929	0

Apart from direct admissions, Witton Hospital received during the year 234 convalescents transferred from Little Bromwich.

Diphtheria.

The very high aggregate of 2,099 patients were admitted to hospital notified by the practitioner as suffering from diphtheria; 706 (33% of this total) presented no evidence of clinical diphtheria upon admission to hospital. Thus, subtracting this figure from 2,099 and adding 10

cases sent in with a diagnosis of scarlet fever, but in which the condition was actually clinical diphtheria, the net number of admissions of patients suffering from clinical diphtheria becomes 1,403. The corrected number of deaths due to diphtheria alone, or to diphtheria with some concomitant condition was 69. The case mortality worked out upon the Registar General's *formula from these corrected figures is 5%. Of the 706 cases in which the diagnosis was revised, 368, or rather over 50% had been swabbed by the practitioner before admission, and the diagnosis had apparently been based upon the receipt of a " positive " report. In the remaining 338, the diagnosis was made upon clinical grounds. Whereas, in the " swabbed " series, 105 shewed no evidence of any pathological condition, this was only the case in 39 of those from which no swab had been taken before notification.

The 69 fatal cases of diphtheria have been analysed in order to ascertain how many had been swabbed before admission, and how many had had anti-toxin before admission. The results are set out below, together with the length of stay in hospital before death.

Table 2.

	No.	Swabbed before admission.	Anti-toxin before admission.	
(1) Within 24 hours of admission	9	1	0	
(2) ,, 48 ,, ,, ,, ...	6	0	0	
(3) ,, 3 to 5 days of admission	17	9	4	3 after swab report
(4) ,, 6 to 10 ,, ,, ,, ...	20	9	0	
(5) ,, 11 to 20 ,, ,, ,, ...	13	5	1	
(6) Over 20 days from admission	4	0	0	
	69	24	5	

* Deaths × 100.
Half the sum of admissions, discharges and deaths.

In the following table (3), the 69 fatal cases of diphtheria are arranged according to the day of disease on admission to hospital.

Table 3.

Day of disease on admission.	No. of cases.	Day of disease on which the case was first seen by the practitioner:— 1st.	2nd	3rd	4th	5th	6th	7th	8th & over
1st	0	0							
2nd	4	2	2						
3rd	9	3	2	4					
4th	10	0	2	2	6				
5th	14	0	2	2	3	7			
6th	16	1	1	3	1	4			
7th	8	2	1	1	2	0	6	2	
8th and over	8	0	1	0	0	0	2	1	4
	69	8	11	12	12	11	8	3	4

Table 4. shews the fatal cases of diphtheria divided into age groups.

Under 1 yr.	1 — 2	2 — 3	3 — 4	4 — 5	5 — 6	6 — 7	7 — 8	8 — 9	9— 10	10— 15	15— 20	Total.
1	1	5	14	6	7	8	7	6	5	8	1	69

Intravenous Administration of Diphtheria Anti-Toxin.

As in previous years, a number of cases of diphtheria of the most toxic type received anti-toxin by the intravenous route; the actual number of cases so treated in 1929 was 62. Serum given intravenously to the worst type of cases secures immediate concentration of anti-toxin in the blood. In a number of cases, a very high unitage of anti-toxin was employed. While one is quite convinced about the route in these severe cases, it is desirable that a longer series should be collected and analysed before anything definite is said one way or the other about the dosage.

The Heart in Diphtheria.

Professor K. D. Wilkinson, in conjunction with one of the senior medical officers, has continued the investigation of the heart in diphtheria by means of the electrocardiograph. Eight wards in the hospital are specially wired so that records may be readily obtained from a variety of clinical material without undue disturbance of the patient. Professor Wilkinson has made the following interim report upon this work :—

> " During the early part of the year, various difficulties made the work with the electrocardiograph both scanty and unproductive; the amount of work which fell upon the medical officer who was using the machine was augmented by the large admissions of cases and by sickness amongst the medical staff; the result was, that for a while the electrocardiograph was relatively little used.
>
> Since October, the work has progressed with increased activity; the machine is working exceptionally well, and records are being taken of a large number of cases. The cases investigated fall into two categories :—
>
> > First; routine tracings taken of many children with mild diphtheria. This is done in order to detect the earliest electrocardiographic changes demonstrable in this condition; to establish records of the normal childish heart and to give graphic and permanent records to correlate clinical data.
> >
> > In the second place, records are taken of the more serious cases of diphtheria available, in order to watch the development and progress of the lesions in the heart.
>
> During the past year, some exceptionally striking examples of diphtheria poisoning of the heart with consequent disorder of the cardiac rhythm have been fully investigated. Certain of these cases have been investigated further by pathological examination. Many hundreds of sections have been prepared shewing the site of the lesions in the heart muscle, and demonstrating the correctness of the diagnosis, as made by the electrocardiographic method of examination. The site and nature of the changes which occur in the heart in diphtheria are thus being elucidated, and it is hoped to publish some of these investigations at no very distant date. Much remains to be done in investigating the effects of treatment on cardiac lesions; it is hoped to proceed with this work in the future. The uncomplicated case of scarlet fever, at any rate of that mild type of scarlet fever which is characteristic now, does not shew any cardiac abnormality and, so, electrocardiographic investigation of this disease has been temporarily discontinued in order to concentrate upon the more serious cardiac damage caused by diphtheria."

Return Cases of Diphtheria.

During the year, 18 cases notified as diphtheria were, after discharge from hospital, stated to have given rise to 18 return cases. The following is an analysis of these cases :—

(a) In three instances, neither the discharged nor the return cases had clinical diphtheria.

(b) In four instances, the discharged cases had not had clinical diphtheria; the alleged infected cases were treated at home.

(c) In four instances, the return cases shewed no evidence of clinical diphtheria.

There remain seven genuine return cases: based upon the corrected admissions, this is equivalent to a return case rate of 0.5%. One of these followed the discharge of a patient who had tonsillectomy performed in hospital; the patient was discharged when one set of negative swabs from nose and throat had been obtained. On re-admission, the child was found to have lingual tags from which virulent diphtheria bacilli were recovered. Bacteriological clearance followed promptly the removal of these tags.

Treatment of Diphtheria Carriers.

In 120 carriers of diphtheria bacilli of proved virulence, the carrier state was terminated by the removal of tonsils and adenoids. The only case initiating a return case in this series is the one noted above. During the year, further trials have been made of the method of treating carriers by gentian violet spray. It is clear that no considered statement can be made until a very large number of cases are available for analysis.

Diphtheria in the " Immunised."

In last year's report, an account was given of 18 cases admitted to this hospital with a notification of diphtheria, and a history of a partial or complete course of injections of toxoid anti-toxin at varying periods before the date of infection. Amongst that series of 18, three cases presented

evidence of clinical diphtheria. Of these, one child had had two doses of T.A.M., the second dose having been given a month before admission; another child had had its third dose two weeks before admission to hospital, whilst, in the remaining case—a severe one—the course had been completed 9 months previously. During 1929, similarly, 25 patients were admitted to hospital with a notified diagnosis of diphtheria and a history of prior immunisation. Of the total of 25, four only had clinical diphtheria. The immunisation history of these four cases was as follows:—

(1) Immunised 12 months previously; no confirmatory Schick test. Schick test on admission to hospital "positive." Definite clinical diphtheria: 48,000 units of anti-toxin.

(2) Immunisation course completed one month before admission. Schick test not done. Definite clinical diphtheria: 40,000 units of anti-toxin.

(3) One dose of T.A.M. a few days before contracting a severe attack of clinical diphtheria: 48,000 units of anti-toxin.

(4) Clinical diphtheria contracted immediately after completion of the course of T.A.M. Incidentally, this patient was admitted again 11 months later. On the second occasion there was no evidence of clinical diphtheria, and the Schick test was negative.

Immunisation of Scarlet Fever Patients Against Diphtheria.

Towards the end of the year, a practice was revived which had been tentatively started about three years previously. It was arranged that the ambulance nurse should point out to the parents of every case of scarlet fever for removal the advantages to the child of being tested during its stay in hospital for susceptibility to diphtheria and, if necessary, being immunised whilst in hospital. A printed form for the parents' signed consent was prepared by the Medical Officer of Health. A very high percentage of consents has been obtained to this procedure. It is hoped, during 1930, to immunise against diphtheria a large number of scarlet fever patients.

Scarlet Fever.

The crude total of admissions of cases notified as scarlet fever was 1,770; of these, the diagnosis was revised in 181 cases. Five of these cases were revised to scarlet fever and some other infectious disease. In 176 cases, there was no evidence of scarlet fever. 59 cases notified as diphtheria were revised to scarlet fever. There results a net total of 1,653 direct admissions treated for clinical scarlet fever. Of this total, only three patients died. The causes of death were as follows:—

(1) Toxic scarlet fever; osteomyelitis and septicaemia.

(2) Toxic scarlet fever.

(3) Septic scarlet fever.

There were two further deaths of patients notified as scarlet fever, but in neither instance was there any evidence of this disease; the cause of death in one case being whooping cough and convulsions, and in the other, measles and broncho-pneumonia. Worked out upon the Registrar General's formula, the case mortality of scarlet fever in 1929 was only 0.2%. Twenty years ago, the case mortality from scarlet fever in this hospital was recorded as being 3.9%, and 10 years ago, 2%; thus, low as the case mortality then was, last year's figure was only a tenth of what it was a decade back.

Serum Treatment of Scarlet Fever.

An analysis has been made of 1,531 cases of scarlet fever under treatment during 1929. The number analysed is less than the total admitted during the year owing to the fact that at the time the analysis was made, a number of cases were still under treatment in the wards. Only the more severe cases admitted within the first four days from the *onset* of the disease received scarlet fever anti-toxin. This was, without exception, given intramuscularly—usually in a dose of 10 c.cm.; occasionally 20 c.cm. Cases which did not receive serum treatment were either of the mildest type, or else were admitted in the stage of desquamation, or when actually suffering from some late complication of the disease.

Of the total of 1,531 analysed, 646 received serum, and 885 were treated without serum. Whether treated with serum or not, the "normal" period of detention in hospital—for the uncomplicated case of scarlet fever—was regarded as being from 26-32 days from *onset*: desquamation was neglected. In the serum treated series, 419 (64.8%) were discharged in from 26-32 days from *onset*; 336 of these in from 26-29 days. In the non-serum treated series, 539 (64.5%) were discharged from 26-32 days; 423 of these in from 26-29 days. In both categories, delayed discharge beyond this normal period may be assigned to the following causes:—

(1) Delay due to the complications of scarlet fever.

(2) Delay due to abrasions of mucous surfaces, onychia, spots, etc., causes too small to be dignified by the name of complications but, nevertheless, potentially infective foci.

(3) Relapses.

(4) Delay due to extraneous causes, e.g., cross-infection in the ward, or quarantine of a ward following the introduction of a cross-infection.

(The cross-infection which chiefly gave rise to trouble in 1929 was chickenpox).

The following table shews the numbers and percentages of cases detained amongst the serum and non-serum treated series for either of these four causes:—

	Serum treated.		Non-serum treated.	
	No.	%	No.	%
(1) Complications	94	14.5	158	17.8
(2) Infective foci	48	6.7	69	7.7
(3) Relapses	7	1.0	15	1.6
(4) Extraneous causes	61	9.0	89	10.0

It must be clearly stated that these two series are not clinically comparable since, as already mentioned, only the more severe types received scarlet fever anti-toxin. Even so, it would appear that the complication rate in serum treated series was 3.3% lower as compared with the non-serum treated. The fact that in both categories a practically similar percentage (64%) was ready for discharge in the minimum time, would seem to confirm the conclusion arrived at in previous years, that the use of serum brings a greater number of cases into the uncomplicated class and so enables a larger total of patients to be discharged after a minimum stay. It will also be noted that the relapse rate was lower in the serum than in the non-serum treated series. With regard to those cases detained under the heading of " extraneous causes," it is certain that in both serum and non-serum treated cases, a number would have been ready for discharge in a minimum time had it not been for the extraneous cause; it was a mere matter of chance whether such a cause operated in either serum or non-serum treated series.

Return Cases of Scarlet Fever.

Return cases followed the discharge of 46 cases of scarlet fever from hospital. Based on the corrected admission figure of 1,653, this is equivalent to a return case rate of 2.7%. This return case rate is certainly not above the general average of return case rates in previous years or in other cities. Thus, the earlier discharge of scarlet fever cases from hospital does not result in a rise in the return case rate. Our " standard " period of detention for the uncomplicated case—serum treated or not—was, as is stated above, from 26-29 days from *onset*. The actual length of stay in hospital would be from 2-3 days less; since it is rare for a case to be sent into hospital sooner than the 2nd or 3rd day from *onset*.

Issue of Scarlet Fever Anti-Toxin to Practitioners.

The value of scarlet fever anti-toxin, not only for treatment but for passive immunisation, having become established, the Public Health Committee, towards the end of 1928, sanctioned its free supply to practitioners, on request, in the same manner as diphtheria anti-toxin. From the commencement of this free issue of scarlet fever anti-toxin in November 1928 to the end of 1929, the amount supplied was as follows:—

	Number supplied.	Amount issued.
Hospitals	5	240 c.cm.
Practitioners	28	1,350 c.cm.

Based on the ordinary therapeutic dose of 10 c.cm. this amount would suffice to treat 159 cases, but as it is known that some was utilised in much larger doses for cases of streptococcal septicaemia, the actual number of cases of scarlet fever treated with serum supplied from this hospital was certainly less than 159. Having regard to the prevalence of scarlet fever in the city during the year, and the advantages in the use of serum for its treatment, it seems unfortunate that the demand was not greater.

Other Infections.

Two cases of Smallpox were admitted to Witton Hospital in April and May respectively. (1) male: 18 years: unvaccinated: discrete mild smallpox. (2) male: 24 years: vaccinated in infancy—1 scar $\frac{3}{4}$ of a square inch: modified discrete attack. Both made uneventful recoveries.

Other infections admitted to Little Bromwich during the year included—enteric fever, diarrhoea, erysipelas, measles, rubella, whooping cough, chickenpox and mumps.

Serum Prophylaxis of Measles.

The power of the serum of a patient convalescent from measles to confer protection upon another exposed to measles is now well established. The serum of measles convalescents is employed upon a large scale on the Continent and America for the protection of young susceptible children exposed to the disease. On previous occasions, we have been able to secure and reserve a small supply of such serum for the protection of young children who may have been exposed in the wards to the cross-infection of measles. It is difficult to rely upon such a supply. Recently, it became necessary to protect a number of children exposed to measles at a time when our supply had become exhausted. Advantage was, therefore, taken of the fact that the serum of persons who have had an authentic attack of measles in childhood also possesses protective properties. Requests were, therefore, made to young probationers who could give a clear history of an attack of measles in childhood, to allow us to take some of their blood. There was a very ready response and a supply of blood was obtained from a number of these probationers. Blood was separately collected and sent down to Dr. Henry for the necessary tests, prior to the preparation of a supply of " pooled " serum. Measles-immune serum may be injected into exposed susceptible children, with one of two objects in view—prevention or attenuation.

(a) Serum injected in a suitable dose not later than the sixth day after exposure to a case of measles will prevent an attack occurring in a very high percentage of those injected.

(b) Injected from the 7th to 9th day after exposure, the attack is not prevented but its severity is very much decreased.

As a result of procedure (a) passive immunity is produced which does not last more than a month; the child then again becomes susceptible. As a result of procedure (b) the child attains an active and lasting immunity following an attack of measles of very slight severity. It was found that the serum obtained from the probationers—used in a dose of 10 c.cm.—was quite successful, either for prevention or attentuation. Having regard to the unfortunate results which may accrue to a child developing measles in addition, for example, to diphtheria, the method is obviously of great value in any children's wards. There is a simpler method applicable in the homes of children exposed to measles, viz. : the injection of whole blood from either father or mother; one or both of whom are almost certain to have had measles in childhood: the blood is taken directly from a vein in the arm of a parent and injected into the buttock of the child.

Immunisation of Nursing and Domestic Staff.

As in previous years, all new entrants to the nursing and domestic staff have had the Schick and Dick test performed as soon as possible after joining. Those giving positive reactions have been actively immunised. During 1929, one ward maid contracted clinical diphtheria within 12 days of joining the staff. She was Schick positive and had received only one immunising dose. Seven probationers and one maid contracted scarlet fever. Of this total of 8, six contracted the disease either before immunisation could be started or during the process, i.e., within a very short time after entry. Of the remaining two, one gave a Dick negative reaction on entry and was again Dick negative in the early stages of a clinical attack of scarlet fever. In the other instance, the girl was Dick positive on entry and immunisation was commenced. She produced a severe reaction to the initial dose, and the process was discontinued; nevertheless, two weeks after this single immunising dose, the Dick reaction was negative and was still negative a month later. Two months after this second negative Dick test, the girl contracted clinical scarlet fever, and was treated with scarlet fever anti-toxin. Those to be immunised against scarlet fever receive an aggregate of 38,000 skin test dose in 5 doses. It will be noted that none of those members of the staff who contracted scarlet fever had completed this course. It is the almost invariable experience that new entrants who are Dick positive reactors contract scarlet fever a few days after entering scarlet fever wards. Unless it is possible for such new entrants to work in wards which contain neither diphtheria nor scarlet fever until they are immune to both diseases or, better still, until it is feasible to secure that new entrants are immunised where necessary to both diseases *before* they actually join the hospital, it is unlikely, in times when scarlet fever is prevalent, that we shall be able virtually to abolish scarlet fever amongst the staff in the same way as we have diphtheria. The admission of sufficient numbers of a " neutral " disease such as measles would enable us largely to overcome this difficulty. New entrants, the vast majority of whom have had measles, could work in such " other diseases " wards until active immunity to diphtheria and/or scarlet fever had been produced.

Disinfection.

The following table gives details of the work done during 1929:—

Houses disinfected after diphtheria	1,739
,, ,, ,, enteric fever	30
,, ,, ,, puerperal fever	55
,, ,, ,, smallpox	2
,, ,, ,, tuberculosis	2,084
,, ,, ,, cancer	307
,, ,, ,, miscellaneous diseases (by request)	157
Beds disinfected	4,568
Miscellaneous articles of clothing and bedding	22,288
Library books disinfected	1,092

VII. MATERNITY AND CHILD WELFARE.

(Report by Dr. Ethel Cassie).

BIRTHS.

The number of live births registered for Birmingham in 1929 was 16,803. This is 419 fewer than in 1928. The birth-rate was 17.1 per 1,000 which is the lowest rate ever recorded in the City. The birth-rates for the past 28 years are given in Table I in the appendix, (Page 128). It will be seen that, except for fluctuations during the War, there has been a steady decrease from 31.4 in 1901 to 17.1 last year.

The Birmingham birth-rate is still above that of England and Wales which was 16.3 last year; it is also above the rates for Sheffield (15.5), Bristol (15.6), Leeds (15.6) and London (15.7), equal to that of Edinburgh (17.1), but below those for Liverpool (21.6), Glasgow (21.2) and Manchester (17.3).

The birth-rate varied greatly in different parts of the City, as shown in the table below.

Birth-Rates in Wards.

	Ward.	Birth-rate. 1929.	
Central Wards ...	St. Paul's	23.8	Average 21.8.
	St. Marys	25.6	
	Duddeston and Nechells	20.4	
	St. Bartholomew's	21.5	
	St. Martin's and Deritend	22.3	
	Market Hall	19.1	
	Ladywood	19.8	
Middle Ring ...	Lozells	15.3	Average 15.4.
	Aston	17.8	
	Washwood Heath	16.4	
	Saltley	17.4	
	Small Heath	14.9	
	Sparkbrook	14.4	
	Balsall Heath	14.2	
	Edgbaston	11.0	
	Rotton Park	15.8	
	All Saints	17.0	
Outer Ring ...	Soho	11.5	Average 14.9.
	Sandwell	10.9	
	Handsworth	12.0	
	Perry Barr	16.8	
	Erdington North	18.6	
	Erdington South	16.8	
	Yardley	18.1	
	Acock's Green	20.0	
	Sparkhill	16.0	
	Moseley and King's Heath	12.8	
	Selly Oak	13.0	
	King's Norton	13.4	
	Northfield	16.0	
	Harborne	12.6	

The position of the different wards can be seen by reference to the chart on page 11. The central wards are occupied mainly by the poorer class of citizens, and it is amongst these the birth-rate is highest. In 1929, it was 21.8 in the central wards as compared with 14.9 in the outer wards, i.e., half as high again as in the wards on the fringe of the town.

AGES OF MOTHERS.

During 1929, an enquiry was made into he ages of the women who were confined. Actual information was obtained in nearly 14,000 cases. An estimate is given below of the births during 1929 to women of different ages and the corresponding rates per 1,000 married women of that age.

Age period.	No. of Births.	Rate per 1,000 Married Women.
15—19	372	554
20—24	3,480	266
25—29	5,219	201
30—34	3,974	140
35—39	2,597	91
40—44	1,047	38
45—49	114	4

The rate for young women under 20 is probably somewhat overstated as a considerable proportion of illegitimate births are included in the births at this age period.

STILLBIRTHS.

The net number of stillbirths was 590, equal to 4 per cent. of the live births. The proportion of stillbirths per 1,000 births in the different City areas is very similar:—

Central Wards	36.6 per 1,000
Middle Ring	34.7 ,, ,,
Outer Ring	33.9 ,, ,,

There is probably a higher proportion of young mothers in the outer ring.

Information was obtained last year of the age of the mother in the great majority both of stillbirths and live births. From this information the following figures have been obtained:—

Age of mother.	Estimated live births.	Estimated still-births.	Proportion of Still-births to live births.
15—19 years	372	10	2.7 per cent.
20—24 ,, ...	3,480	95	2.7 ,,
25—29 ,, ...	5,219	145	2.8 ,,
30—34 ,, ...	3,974	155	3.9 ,,
35—39 ,, ...	2,597	127	4.9 ,,
40—44 ,, ...	1,047	52	5.0 ,,
45 and over	114	6	5.3 ,,

It seems clear from the above figures that the risk of having a stillborn baby increases steadily with the mother's advancing age.

Thirty-five per cent. of the still-births occurred in primiparæ.

The percentage of illegitimates among the stillbirths was about the same as amongst the live births.

A very high proportion of the stillbirths were premature—205 as compared with 275 full time births. This emphasises the importance of prematurity as a factor in infant mortality. Undoubtedly, a proportion of these premature stillborn babies die during birth, being too immature to withstand the strain of birth, even though others are born prematurely because death has taken place *in utero*. It is of some interest to note that 141 out of 509 (28%) stillbirths occurred in the practice of midwives where no doctor was in attendance; of these 26 or 18% were in breech presentation. In the remainder, the presentation was a vertex. It is frequently urged that midwives should call for medical help in all breech cases. They usually do so in primiparæ, so it may be assumed that the majority of these cases were in multiparæ. Three hundred and twenty-seven of the stillbirths occurred in multiparæ, and 125 (or 38%) of these had had a previous miscarriage or stillbirth. This implies a tendency to recurrence which has been reported in a series of previous observations. A table is given below showing the relative frequency of stillbirths in proportion to pregnancies.

PREGNANCIES OF MOTHERS WHO HAD STILLBIRTHS IN 1929.

Number of Pregnancies.	Number of Mothers.	Mothers who had following number of Stillbirths or Miscarriages.									
		1	2	3	4	5	6	7	8	9	10
1	180	180	—	—	—	—	—	—	—	—	—
2	91	70	21	—	—	—	—	—	—	—	—
3	54	40	12	2	—	—	—	—	—	—	—
4	44	26	14	3	1	—	—	—	—	—	—
5	31	18	8	3	2	—	—	—	—	—	—
6	29	17	10	1	1	—	—	—	—	—	—
7	25	9	11	3	—	1	1	—	—	—	—
8	17	7	4	4	1	—	1	—	—	—	—
9	14	6	2	5	—	—	1	—	—	—	—
10	5	3	1	1	—	—	—	—	—	—	—
11	6	2	2	1	1	—	—	—	—	—	—
12	2	—	—	—	—	2	—	—	—	—	—
13	3	2	—	—	—	—	—	1	—	—	—
14	4	1	1	1	—	—	—	—	—	—	1
15	—	—	—	—	—	—	—	—	—	—	—
16	1	—	—	—	—	—	—	—	1	—	—
17	—	—	—	—	—	—	—	—	—	—	—
18	1	1	—	—	—	—	—	—	—	—	—
Not stated	2	—	—	—	—	—	—	—	—	—	—
Total	509	382	86	24	6	3	3	1	1	—	1

ILLEGITIMATE BIRTHS.

During 1929, there were 615 illegitimate births belonging to Birmingham. Of these, 579 occurred in the City and 36 in other places. The illegitimate births were in the proportion of 36.6 per 1,000 of the total live births. This is about the usual proportion for Birmingham.

Some information was obtained with regard to 551 cases.

Of these 551 illegitimate babies, no less than 316 were born in Institutions, 222 of these being in the Poor Law Hospitals.

It is well known that the mortality among illegitimate children is very high. Last year it was at the rate of 128 per 1,000 while among legitimate children it was 77. For this reason it has been the custom in Birmingham to maintain a special supervision over illegitimate babies. At the time of writing 79 of the babies born in 1929 were still inmates of the Institutions in which they were born. Twenty seven babies died before a visit could be paid to them, and 13 others had been removed to other areas before they could be visited. In these cases information of their removal was forwarded to the district concerned. In 22 cases the child could not be traced. This leaves 418 babies who received at least one visit and regarding whom the following information was obtained.

In 18 cases the parents had married since the baby's birth. In 118 the parents were living together though not married. This implies that in 136 or 33% of the cases the child lived under conditions comparable to those in the ordinary home.

Seventeen of the babies had been satisfactorily adopted.

In 62 cases the father was contributing to the child's maintenance under an Affiliation Order; in 48 others the father was contributing voluntarily, while in 130 no help of this kind was being received by the mother. In the remaining 25 cases no information on this point could be obtained.

With a view to ascertaining how far illegitimate babies are deprived of the great advantage of their mothers' personal care, the records for babies born in 1928, and kept under supervision for a complete year, have been examined. The records for 547 babies were available. These show that in 144 cases the parents had either married or were living together. As regards the mother's care, therefore, the babies were in just the same position as if they had been legitimate. Fifty-

eight babies died before they were a year old, and in 76 cases sufficient information was not available. This leaves 269 babies who were visited for twelve months and whose fathers were not living with the mothers. This is the group which comprises the majority of those suffering from illegitimacy in their environmental conditions. The enquiry shows that 21 of these babies were put out to nurse immediately after birth. The other 248 lived with their mothers for the length of time shown below:—

LIVING WITH MOTHER.

For whole 12 months	184
For 9 to 12 months only	14
For 6 to 9 months only	20
For 3 to 6 months only	21
For 3 months only	9
Not at all	21

Thus 71 babies out of 269 were deprived of their mother's care before they were 9 months old.

Separation from the mother must, of course, involve artificial feeding, and the figures on this point are instructive.

BABIES BREAST FED.

For whole 9 months	37
For 8 months only	9
For 7 ,, ,, ...	19
For 6 ,, ,, ...	14
For 5 ,, ,, ...	13
For 4 ,, ,, ...	18
For 3 ,, ,, ...	21
For 2 ,, ,, ...	30
For 1 ,, ,, ...	11
Not at all	97

Thus only 79 babies out of 269, or less than 30% were breast fed until six months old. Taking the average of all infants, about 63% were breast fed till the age of six months as ascertained in a previous enquiry. The most important period for breast feeding is below the fourth month, and no less than 159 or 59% were not breast fed for the whole of this period. There seems little doubt that the artificial feeding of so large a proportion of young illegitimate babies is one of the causes—perhaps the chief cause—of the high mortality among them.

The necessity for giving up breast feeding arises in most cases from the mother having to resume her usual occupation. Out of 254 mothers who had followed some business occupation before confinement, no less than 15 resumed work in the first month after the baby was born, 37 in the second, 30 in the third, 18 in the fourth, 19 in the fifth and 20 in the sixth, so that 139 or 55% had started work before the baby was six months old.

There is little doubt that if it were made possible for all illegitimate babies to be breast fed and cared for by their own mothers, the mortality among them would be much reduced. Birmingham is fortunate in having agencies whose work is directed towards this end; but there is evidently need for a considerable extension of the work.

INFANT MORTALITY.

The Infant Mortality rates in Birmingham over a series of years are set out in the following table. It will be noted that the rate for 1929 was higher than in the four previous years and was above that of England and Wales.

The main cause of the increase was the occurrence of the influenza epidemic in the spring, together with a comparatively severe outbreak of gastro enteritis in the autumn.

Infant Mortality Rate.

	Birmingham.	England and Wales.
1901-05	157	138
1906-10	131	117
1911-15	126	110
1916-20	94	91
1921-25	80	76
1920	83	80
1921	83	83
1922	86	77
1923	72	69
1924	83	75
1925	78	75
1926	73	70
1927	75	70
1928	65	65
1929	79	74

Infant Mortality in Wards.

The appended table shows the infant mortality rate in each of the wards of the City in 1929. The average mortality in the groups of wards ten years ago, and in 1928, is given for comparison.

Central Wards:	St. Pauls	120	Average: In 1928— 84. In 1929—106. In 1919—105.
	St. Mary's	111	
	Duddeston and Nechells	125	
	St. Bartholomew's	98	
	St. Martin's and Deritend	108	
	Market Hall	73	
	Ladywood	108	
Middle Ring:	Lozells	80	Average: In 1928—60. In 1929—71. In 1919—76.
	Aston	86	
	Washwood Heath	92	
	Saltley	69	
	Small Heath	50	
	Sparkbrook	45	
	Balsall Heath	51	
	Edgbaston	84	
	Rotton Park	82	
	All Saints	72	
Outer Ring:	Soho	92	Average: In 1928—50. In 1929—56. In 1919—64.
	Sandwell	46	
	Handsworth	43	
	Perry Barr	0	
	Erdington North	56	
	Erdington South	49	
	Yardley	65	
	Acocks Green	68	
	Sparkhill	74	
	Moseley and King's Heath	38	
	Selly Oak	76	
	King's Norton	54	
	Northfield	60	
	Harborne	58	

In all but the outer ring the figures correspond closely with those of 1919. In that year the infant mortality for the City was 84 as compared with 79 in 1929, and the fall has taken place almost entirely in the outer and middle rings. Comparing the low infant mortality rate of 1928 with these figures it will be seen that the difference between the rings was less marked with the low than with the high rate; the fall was less steep. This suggests that with epidemic deaths the central crowded areas must suffer more severely, even in proportion to their higher mortality under ordinary conditions.

Infantile Mortality by Age and Cause.

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

Cause of Death.	Weeks.				Total under One Month.	Months.				Total Deaths under One Year.
	0—	1—	2—	3—		1—	3—	6—	9—	
Measles	—	—	1	—	1	1	1	16	19	38
Scarlet Fever	—	—	—	—	—	—	—	—	—	—
Whooping Cough	—	—	—	—	—	8	10	15	13	46
Diphtheria and Croup ...	—	—	—	—	—	—	—	—	3	3
Influenza	1	—	—	—	1	—	4	6	8	19
Tuberculous Meningitis ...	—	—	—	—	—	—	2	4	6	12
Abdominal Tuberculosis ...	—	—	—	—	—	—	2	—	1	3
Other Tuberculous Diseases	—	—	—	—	—	2	3	1	5	11
Rickets	—	—	—	—	—	2	1	—	1	4
Syphilis	1	—	—	—	1	2	2	2	1	8
Cerebro-Spinal Fever ...	—	—	—	—	—	—	—	4	4	8
Meningitis (not Tuberculous)	1	—	—	—	1	—	2	1	2	6
Convulsions	8	6	1	1	16	4	3	2	5	30
Bronchitis	3	1	1	—	5	10	10	9	11	45
Pneumonia (all forms) ...	1	1	4	5	11	30	46	72	59	218
Gastritis	—	—	—	—	—	2	1	—	—	3
Diarrhoea, Enteritis, etc. ...	1	—	1	2	4	52	79	42	26	203
Congenital Malformations ...	30	6	11	5	52	26	11	—	8	97
Premature Birth	266	28	25	11	330	28	2	1	—	361
Atrophy, Debility and Marasmus	16	5	3	5	29	9	11	1	1	51
Atelectasis	20	3	1	1	25	1	—	—	—	26
Injury at Birth	39	3	1	2	45	1	—	—	—	46
Neglect (under 3 months) ...	6	—	—	—	6	—	—	—	—	6
Suffocation (overlying) ...	1	—	—	—	1	7	2	1	1	12
Other Causes	8	5	2	—	15	3	17	12	21	68
All Causes	402	58	51	32	543	188	209	189	195	1,324
Rate per 1,000 Births ...	23.9	3.5	3.1	1.9	32.3	11.2	12.4	11.2	11.6	79

Comparing the chief causes of death in 1928 and 1929 as set forth below, it becomes obvious that respiratory conditions, (pneumonia, bronchitis and influenza), diarrhoea and premature birth were mainly responsible for the increase in the infant mortality rate, causing 96% of the total increase. The increase in deaths from respiratory conditions was associated with the influenza outbreak, as were a high proportion of premature births.

Infant Deaths From Different Causes.

	1928.	1929.	Difference.
Measles	13	38	+ 25
Whooping Cough	75	46	— 29
Influenza	4	19	+ 15
Tuberculosis	19	26	+ 7
Convulsions	23	30	+ 7
Bronchitis	27	45	+ 18
Pneumonia	150	218	+ 68
Diarrhoea and Enteritis	139	203	+ 64
Suffocation (overlying)	20	12	— 8
Congenital malformation	87	97	+ 10
Premature Birth	327	361	+ 34
Injury at Birth	25	46	+ 21
Atrophy, Debility and Marasmus ...	64	51	— 13
Other causes	144	132	— 12
Total	1,117	1,324	+207

DEATHS OF CHILDREN FROM 1—5 YEARS.

	Deaths 1—2 yrs. 1929	Deaths 1—2 yrs. Average 1924—1928	Deaths 2—5 yrs. 1929	Deaths 2—5 yrs. Average 1924—1928
Measles	92	41	49	20
Whooping Cough	46	54	23	28
Diphtheria	2	8	31	27
Scarlet Fever	0	2	4	6
Influenza	17	5	15	6
Tuberculosis	27	21	32	29
Nervous Diseases	18	16	17	16
Bronchitis and Pneumonia	188	142	92	70
Diarrhoea and Enteritis	31	26	8	7
Other Digestive Diseases	8	5	14	13
Accidental Deaths	17	8	17	23
All other Causes	29	26	23	29
	475	354	325	274

Here again, the effect of the influenza epidemic is evident, while measles also plays an important part in the higher figures for 1929.

INFANTILE DIARRHŒA AND ENTERITIS.

The deaths from this cause of children under two years of age in 1929 were 234. The deaths in previous years are given below:—

	Deaths from Diarrhœa and Enteritis. Under 2 years.	Death-rate per 1,000 births.	Days with Temp. of 75° Fahr. or over.*	Days with 0.01 or more inches of Rain.*
1919	191	9.9	12	39
1920	237	9.5	0	53
1921	367	16.6	27	27
1922	169	8.5	0	55
1923	207	10.9	15	49
1924	170	9.2	2	63
1925	201	11.3	12	46
1926	201	11.2	13	36
1927	198	11.5	3	50
1928	161	9.3	14	30
1929	234	13.9	14	33

*In the third quarter of the year.

The diarrhoea rates in different parts of the City in 1929 were as follows:—

Central Wards	26.5 per 1,000 births.
Middle Ring	8.7 ,, ,, ,,
Outer Ring	8.7 ,, ,, ,,

The death-rate has not been exceeded during the last 10 years, except in 1921, which was a particularly dry, hot year.

In 1929 the apparent cause of the increase in diarrhoea deaths was the windy, dry autumn. The epidemic lasted roughly for six weeks from the middle of September to the end of October. While affecting the whole city, the Central Wards were particularly affected. This is clearly shown in the table given below:—

Diarrhoea and Enteritis Deaths (under two years).

	August 10th to Sept. 14th.	Sept. 21st to Oct. 26th.	Nov. 2nd to Dec. 7th.	Total
Central Wards	20	52	12	84
Middle Ring	6	17	6	29
Outer Ring	7	17	9	33

Every death from enteritis of a child under five years registered from August 10th to December 7th has been investigated, and the results are tabulated in the following table according to the Welfare Centre areas.

Deaths from Enteritis.

August 10th to December 7th, 1929.

	Age Groups.							Home Conditions.			Diet.		Where died.	
	Total Deaths. 0–5 yrs.	0—1 year.				1—2 years.	2—5 years.	Good.	Fair.	Poor.	Satis-factory.	Unsatis-factory.	At Home.	In Insti-tutions.
		Up to 3 m'ths.	3—6 months.	6—9 months.	9—12 months.									
Group I.														
1. Aston Street	14	4	4	3	2	—	1	3	3	8	7	7	1	13
2. Bloomsbury Street	15	4	5	3	1	2	—	4	5	6	10	5	2	13
3. Floodgate Street	15	6	1	3	3	2	—	2	8	5	10	5	7	8
4. Irving Street	5	1	1	1	1	1	—	1	2	2	2	3	—	5
5. Lichfield Road	4	2	2	—	—	—	—	3	1	—	4	—	1	3
6. Smith Street	17	3	9	1	4	—	—	7	8	2	10	7	3	14
7. St. Vincent Street	10	1	2	5	1	—	1	2	4	4	5	5	2	8
8. Hope Street	14	2	5	1	3	2	1	4	4	6	10	4	3	11
Total	94	23	29	17	15	7	3	26	35	33	58	36	19	75
Group II.														
9. Carnegie Institute	6	—	1	2	3	—	—	1	1	4	3	3	3	3
10. Lansdowne Street	1	—	—	—	—	1	—	—	1	—	1	—	1	—
11. Stratford Road	7	1	4	—	1	—	1	1	—	6	3	4	1	6
12. Washwood Heath	7	1	2	2	1	—	1	4	2	1	6	1	3	4
13. Wright Street	4	2	—	—	—	2	—	2	1	1	2	2	1	3
Total	25	4	7	4	5	3	2	8	5	12	15	10	9	16
Group III.														
14. Acocks Green	2	1	—	—	—	1	—	2	—	—	2	—	—	2
15. Bromford	5	—	2	3	—	—	—	3	2	—	4	1	1	4
16. Erdington	2	—	2	—	—	—	—	1	1	—	2	—	—	2
17. Greet	3	—	1	—	—	2	—	1	1	1	1	2	—	3
18. Handsworth	2	—	—	—	2	—	—	2	—	—	2	—	1	1
19. Hay Mills	5	—	3	—	—	2	—	2	3	—	3	2	2	3
20. King's Heath	5	2	—	3	—	—	—	—	3	2	3	2	—	5
21. Northfield	1	—	—	—	—	1	—	—	1	—	—	1	1	—
22. Perry Common	2	—	1	—	1	—	—	1	1	—	1	1	1	1
23. Selly Oak	2	—	—	1	1	—	—	2	—	—	1	1	—	2
24. Stirchley	2	—	—	2	—	—	—	1	1	—	1	1	—	2
25. Trinity Road	1	—	—	—	1	—	—	—	1	—	1	—	—	1
26. Harborne	2	—	1	1	—	—	—	2	—	—	—	2	—	2
Total	34	3	10	10	5	6	—	17	14	3	21	13	6	28
Grand Totals	153	30	46	31	25	16	5	51	54	48	94	59	34	119

A further tabulation in groups is given in the two short tables below:—

DEATH-RATE FROM ENTERITIS PER 1,000 BIRTHS.

	0—5 yrs.	Up to 3 months.	3—6 months.	6—9 months.	9—12 months.	1—2 years.	2—5 years.
Group 1	46.8	11.4	14.5	8.4	7.4	3.4	1.5
Group 2	17.5	2.9	4.9	2.9	3.4	2.2	1.5
Group 3	17.4	1.6	5.2	5.2	2.5	3.0	—
Whole City	28.4	5.6	8.6	5.8	4.6	3.0	1.0

GENERAL CONDITIONS.

(Percentage of total deaths from Enteritis).

	Home.			Diet.		Where died	
	Good.	Fair.	Poor.	Satis-factory.	Unsatis-factory.	At Home.	In Institu-tions.
Group 1	28%	37%	35%	62%	38%	20%	80%
Group 2	32%	20%	48%	60%	40%	36%	64%
Group 3	50%	41%	9%	62%	38%	18%	82%
Whole City	33%	35%	32%	61%	39%	22%	78%

From these tables the greater danger of enteritis to children living in the central area of the city is made obvious, it is in fact almost three times as great as in the other parts of the city. The type of home was less important, in fact the majority of the deaths were in fairly good homes, and with a fairly satisfactory dietetic standard. The climatic conditions are naturally the same for the whole city, but the effect of dust and high winds is more deadly in the crowded, narrow and less cleanly streets and yards.

The majority of the deaths took place in hospital, which, while it may indicate there was sufficient hospital accommodation, also suggests the difficulty of saving the life of an acutely ill child suffering from enteritis.

DEATHS FROM PNEUMONIA UNDER 5 YEARS OF AGE, DURING THE INFLUENZA EPIDEMIC.

The deaths from pneumonia under the age of five were studied in 6-weekly periods, before, during, and after the influenza epidemic period in 1929. The cases investigated numbered 300. The following table shows the details noted.

DEATHS FROM PNEUMONIA IN 6-WEEK PERIODS

	Before Influenza Epidemic Period.		During Influenza Epidemic Period.		After Influenza Epidemic Period.		Total.
Totals	42	%	222	%	36	%	300
AGE GROUPS.							
Under 1 month	3	7.1	3	1.3	—	—	6
1—6 months	19	45.2	20	9.0	4	11.1	43
6—12 months	8	19.0	59	26.7	11	30.5	78
1—2 years	9	21.4	92	41.4	14	38.9	115
2—5 years	3	7.1	48	21.6	7	19.4	58
TYPE OF CHILD.							
Healthy	25	59.5	130	58.6	18	50.0	173
Ailing	17	40.5	92	41.4	18	50.0	127
Previous Chest Infections	19	45.2	99	44.5	15	41.4	133
TYPE OF HOME.							
Well Managed	16	38.1	88	39.6	19	52.8	123
Bady Managed	14	33.3	77	34.6	8	22.2	99
Fair	12	28.6	57	25.8	9	25.0	78
PART OF CITY.							
Inner Ring	24	57.1	126	56.5	20	55.5	170
Middle Ring	12	28.6	62	27.9	13	35.9	87
Outer Ring	6	14.3	34	15.6	3	8.3	43
ADMISSION TO HOSPITAL	14	33.3	87	39.1	18	50.0	119

The age groups most seriously affected were those from 6 months to 12 months, and from 1 to 2 years. Under 6 months the effect of the epidemic was not apparent.

Over 50% of the children were healthy.

The type of home had little influence, but the highest figures were those for the inner ring of the city.

A study of the notification of pneumonia a all ages during the same period shows that the disease was more prevalent in the inner ring. This can be seen from the next table.

NOTIFIED CASES OF PNEUMONIA

	Before Influenza Epidemic Period.		During Influenza Epidemic Period.		After Influenza Epidemic Period.	
Inner Ring	207	(7.9)	603	(23.0)	137	(5.2)
Middle Ring	172	(4.0)	716	(16.8)	146	(3.4)
Outer Ring	111	(2.5)	529	(11.9)	100	(2.3)
Not Located	10		47		13	
City	500	(4.4)	1895	(16.7)	396	(3.5)

(The case rate per 1,000 of the population is given in brackets).

In this epidemic then, the prevalence of fatal pneumonia among children was related to the general prevalence of infection throughout the city.

During the epidemic 87 children out of the 222 who died received treatment in hospital. The pressure on the hospital beds during this period was very heavy.

CHILD WELFARE CENTRES.

There are now 28 Centres in the city, including the Weighing Centre at Hall Green Church Hall. The two new Centres are those at Acocks Green and Billesley. The demand for Centres in these areas was so insistent that the Committee made temporary provision while plans went forward for building permanent Centres for the large municipal estates in these districts.

Acocks Green Centre was opened in a municipal house in Shirley Road, and has been filled to overflowing from the first day. There are now two infant consultations, a toddlers' clinic, a weighing day and two ante-natal clinics open weekly, with a high average attendance.

The Billesley Centre was opened in the Wesleyan Church Hall, Trittiford Road, and is also well attended. The work is combined with that of King's Heath Centre at present.

The Pype Hayes Centre was moved to Wheelwright Road, Bromford, where accommodation was found in a Church Hall. The attendances became too large to continue the work at Pype Hayes Hall. A new Centre is being built in this district, as well as at Northfield.

Details of the work of the Centres is given on page 98.

The most marked change observed in the figures as compared with 1928 is the increase in ante-natal work. No less than 3,284 more ante- natal visits were paid in 1929, and 3,948 more attendances were made at the ante-natal clinics; 45% of the mothers from homes visited by Health Visitors now attend the ante-natal clinics

Although the attendance of young children from two to five years at the Child Welfare Centres has been fairly good as shown by the figures previously published, it was felt that systematic medical inspection would diminish the proportion of defects found in these children on reaching school age. Consequently the Committee decided to establish medical inspection clinics at seventeen Centres, commencing in January, 1930. These clinics will be held weekly and children from 18 months to five years will be seen by appointment. A complete physical examination will be made at each attendance and quarterly inspections will be advised.

Maternity and Child Welfare Centres—Year 1929.*

	Acocks Green and Hall Green	Aston St.	Bloomsbury St.	Bromford	Carnegie Institute.	Erdington.	Floodgate St.	Greet.	Handsworth.	Harborne.	Hay Mills.	Hope St.	Irving St.	King's Heath. and Billesley	Lansdowne St.	Lichfield Rd.	Northfield.	Perry Common.	St. Vincent St.	Selly Oak.	Smith St.	Stirchley	Stratford Rd.	Trinity Road.	Washwood Heath Rd.	Wright St.	Total.
Infants and Children :—																											
Births (and stillbirths) reported	575	689	745	286	852	424	597	751	440	172	677	966	593	647	706	765	197	370	715	286	846	398	748	542	912	999	15898
Primary visits ...	581	621	825	263	1024	368	593	805	399	184	766	989	577	592	720	972	195	387	752	279	914	530	742	541	901	1002	16522
Re-visits (infants and children)	6829	11325	15636	5136	15887	5908	11271	10749	6739	3522	12360	15378	9880	10100	11504	15354	3288	5609	14091	4411	17803	7899	10743	6343	13044	15757	266566
Total visits & revisits	7410	11946	16461	5399	16911	6276	11864	11554	7138	3706	13126	16367	10457	10692	12224	16326	3483	5996	14843	4690	18717	8429	11485	6884	13945	16759	283088
Mothers :—																											
Primary visits ...	80	175	55	46	115	31	95	169	93	64	71	281	127	60	189	248	45	69	91	39	94	65	80	65	153	150	2750
Re-visits	199	458	441	88	585	83	454	460	28	152	273	363	168	175	368	429	86	219	205	73	379	138	280	174	436	509	7223
Total visits & re-visits	279	633	496	134	700	114	549	629	121	216	344	644	295	235	557	677	131	288	296	112	473	203	360	239	589	659	9973
Children's Consultations :																											
Number held	32	147	109	49	243	97	97	97	98	96	145	97	98	114	130	193	48	98	145	50	146	97	175	98	195	148	3042
Fresh children attend'g	394	570	605	394	2046	435	430	694	319	201	605	637	395	720	509	983	129	323	553	216	678	366	651	497	700	762	14812
Total attendances ...	1795	6640	5514	2803	15014	5158	3965	5528	4541	3174	7178	5543	4022	5614	6540	12703	1333	4330	5468	2340	7899	4533	7577	5746	9293	7693	151944
Number seen by Doctor	930	3368	2235	1267	7480	2283	1497	2889	1884	1640	3193	2310	2096	2341	2957	4827	1077	2353	2905	1370	3093	2192	3517	2641	3663	4787	70795
Mothers' Consultations :																											
Number held	32	60	132	50	96	48	48	96	49	10	50	47	21	48	50	109	23	48	48	22	99	48	48	48	95	97	1522
Fresh mothers attend'g																											
Ante-Natal ...	118	363	671	122	490	189	296	459	124	65	283	290	93	200	190	901	65	191	165	96	485	188	271	240	377	376	7308
Post-Natal ...	18	23	24	19	27	33	10	34	8	13	12	3	2	2	12	102	7	13	40	—	9	39	10	25	49	23	557
Total attendances ...	379	910	1561	442	1321	703	669	1566	371	178	785	652	241	510	577	1693	163	652	454	295	1176	633	711	757	1079	1273	19751
Attendance at :—																											
Sewing classes ...	—	555	687	—	540	453	371	580	643	391	1123	483	550	384	398	632	385	407	376	614	798	669	445	541	315	541	12881
Cookery classes ...	—	343	—	—	467	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	574	411	726	—	—	—	2521
Health Talks	76	2996	1408	1031	4385	1722	404	2886	1990	470	1489	1511	570	703	3899	3828	389	1154	1506	245	851	1404	2522	729	543	2150	40864

*52 weeks

MATERNITY AND CHILD WELFARE EXHIBITION.

TOWN HALL, April 24th, 25th and 26th, 1929.

In 1908 the first child welfare centre was opened in Birmingham in New John Street West. The coming of age of the service was commemorated by this Exhibition portraying the aims and methods of child welfare work and was carried out in its entirety by the maternity and child welfare staff, whose loyal co-operation cannot be too greatly praised. The stalls were arranged by the staff of the 28 child welfare centres of the city, and their descriptive titles are given below:

Stall No. 1.	Sunlight—Natural and Artificial.
Stall No. 2.	Food and Diet.
Stall No. 3.	Rickets and other Physical Defects.
Stall No. 4.	Dental Section.
Stall No. 5.	Midwifery up-to-date.
Stall No. 6.	Ante-natal Care.
Stall No. 7.	Home Nursing.
Stall No. 8.	Prevention of Infectious Diseases.
Stall No. 9.	Clothing.
Stall No. 10.	Child Management and Character Training.
Stall No. 11.	Infant Care and Feeding.
Stall No. 12.	Household Care and Management.

So high was the standard reached that it was impossible to say which was the most successful stall. The lessons exemplified by the stalls were demonstrated by the Health Visitors to crowds of interested spectators during the whole period the exhibition was open.

Very successful platform demonstrations were given, including Toddlers' Mannequin Parades, in which children dressed in garments made by their mothers at the sewing classes walked daintily across the platform. Very successful remedial exercise demonstrations were also given by trained toddlers from Irving Street Centre. Health lectures and cookery demonstrations were included.

A model Welfare Centre was at work in the basement. In addition a very large exhibition of parents' work done for the Walker Shield Competition attracted much attention.

The Literature Stall was well patronised. The Exhibition was advertised by means of original posters designed by members of the Staff. These reached a high degree of artistic merit. Flags were sold at the Welfare Centres, and, in addition, an illustrated programme was prepared and sold.

The hall was attractively decorated in spring colourings and the background of the platform represented a hillside in springtime, with masses of daffodils and apple-blossom. Very valuable help was given by members of the Voluntary Committees and by the Girl Guides Association and other kind friends.

The attendances throughout were most satisfactory. While the exhibition was open to the public in the afternoons and evenings, over 9,000 people entered. During the mornings there was a good attendance of Medical Officers, Health Visitors and Nurses from other districts.

The Exhibition was opened by the Lord Mayor (Alderman W. Byng Kenrick) who with the Lady Mayoress subsequently visited all the stalls.

THE WALKER SHIELD, 1928—1929.

The competition for the Shield was held as usual. The subjects were as follows:—

(1) Mothercraft papers or essays on Child Management, or on Food Values and Diet, by mothers attending the welfare centres.

(2) Parents' Work. Sewing, knitting and cookery done by mothers, and any home-made article of use to the family, made by the fathers.

(3) Relative attendance of children and ante-natal cases at the centres.

(4) Centre records.

The exhibition of parents' work exceeded all expectations and formed an important part of the Town Hall Exhibition. The Shield was awarded to King's Heath Centre, the Harborne and Stirchley Centres being second and third.

The table of marks is given below.

The Shield was presented at the Exhibition by Miss Jane Walker in the unavoidable absence of her mother, Mrs. Sydney Walker, the donor of the Shield. The Lady Mayoress, Mrs. Byng Kendrick, very kindly presided.

"WALKER" CHALLENGE SHIELD COMPETITION.

1929. FULL MARKS 500

	Centre Records. 100 marks.	Centre Attendances. 100 marks.	Mothercraft Examination 100 marks.	Parents' Work Section 200 marks.	Grand Total.
1. King's Heath	89	35	90	173	387
2. Harborne	72	65	80	164	381
3. Stirchley	83	44	81	149	357
4. Carnegie	85	49	73	145	352
5. Wright Street	92	40	73	139	344
6. Hay Mills	90	42	70	141	343
7. Northfield	91	44	77	129	341
8. Greet	75	42	77	143	337
9. Lichfield Road	81	53	59	139	332
10. Aston Street	78	52	74	125	329
11. Erdington	73	57	66	132	328
12. Perry Common	74	59	57	137	327
13. Handsworth	78	41	66	135	320
13. Washwood Heath	70	40	74	136	320
15. Smith Street	82	42	64	127	315
16. Trinity Road	79	58	50	125	312
17. Irving Street	87	37	58	120	302
18. Floodgate Street	79	47	54	117	297
19. Selly Oak	74	26	69	127	296
19. Stratford Road	79	32	56	129	296
21. Bloomsbury Street	76	47	51	119	293
22. St. Vincent Street	73	31	55	127	286
23. Lansdowne Street	71	34	40	132	277
24. Hope Street	77	31	55	109	272
25. Bromford	73	42	35	—	150

TRAINING COURSE FOR HEALTH VISITORS.

This Course commenced on April 23rd, 1929, and was continued for six months until December 22nd, 1929.

Owing to the University closing during the months of July and August, the Course was divided into two parts.

Seventeen Students took the Course—six Pupil Health Visitors from Birmingham, eight Pupil Health Visitors from Nottinghamshire County Council, and three Independent Candidates. Fifteen Students were successful in gaining their Certificate at their first examination.

The work has been done on the same lines as before, and includes the Practical Work of a Health Visitor in all its branches—Maternity and Child Welfare, School Work, Tuberculosis Work, and Infectious Disease Visiting.

In addition to the eighty Lectures given at the University, thirty Lectures have been given by members of the Public Health Staff and others, at 5.30 p.m. once a week.

The usual Tutorials, Demonstrations, and Test Examinations have been given, and visits have been paid to various Institutions.

There are twenty two Students taking the Course, commencing January 1st, 1930.

The demand for the Training Course appears to be growing, several Local Authorities have notified their intention of sending Pupil Health Visitors to take the next Course commencing in October, 1930.

REPORT ON THE WORK OF THE CARNEGIE INSTITUTE.

The work of the Carnegie Institute during 1929 has followed the same lines as in former years with amplifications and amendments in certain spheres.

The total and average attendance is shown in the following table:—

	No.	Attendance.	Average Attendance.
Infant Consultations	243	15,031	62
Ante-natal Consultations	96	1,319	14
Massage Clinic	48	528	11
Test-feeding Clinic	46	248	5
Dental Clinic	222	4,566	21
X-ray Clinic	47	575	12
Ultra-violet Light Clinic	127	5,337	42

The type of cases dealt with and the nature of the work done has been similar to that of previous years.

Educational Work.

The following table shows the total and average attendance at the various classes:—

	No.	Attendance.	Average Attendance.
Mothercraft Class	40	325	8
Cookery Class	41	469	11
Sewing Class	47	548	12
Health Talks	237	4,032	17

The attendance at the classes is rather disappointingly low in comparison with the number of mothers who attend the centre. This may be due partly to the fact that since July, the rule has been strictly enforced that all children shall be left in the Toddlers' Room instead of being brought into the Class Room, as was frequently the case formerly. The presence of children, generally undisciplined, diminishes the usefulness of the class.

A special effort has been made to increase the attractions and educational value of the Toddlers' Room. An increasing number of children are becoming regular attendants. In 1930, it may well be that the rule "No children admitted," will add to, rather than detract from, the popularity of the classes.

The newer efforts in the educational sphere which have been inaugurated in 1929 are as follows:—

(1) Concentrated Ante-Natal Teaching.

It has been found that whereas the expectant mother, particularly if a primipara, is the person who should be most ready to learn, these women are in fact reluctant to attend the ordinary classes. A special syllabus of Health Talks was therefore drawn up to be given at the ante-natal clinics, covering a period of three months, as few mothers attend more than three times.

(2) The Parents' League of Health.

The objects of the League are educational and social. The suggestion has been taken up with enthusiasm by a limited group of parents. The inaugural meeting was held on October 9th, and the first general meeting on November 19th. There are at present 36 members.

(3) The Training of the Toddler.

It had long been felt that far too little use was being made by the mothers of the Toddlers' Room. In July, 1929, steps were taken to remedy this, by re-organising the Toddlers' Room on Nursery School lines. A special worker has been put in charge under the supervision of a member of the staff, and a programme drawn up for every afternoon of the week. Each afternoon starts at 2.30 with handkerchief drill, followed by such occupations as drawing, modelling, brick building, dancing, musical drill, etc. At 3.30 the chidren sit down to "tea" consisting of milk and biscuits. This is followed by washing up and then toothbrush drill.

The response so far, has been encouraging. The mothers are becoming much more willing to leave their children in the Toddlers' Room, and the children have made striking progress in good manners, self-control and independence. The children trained at the dancing classes gave an excellent performance at the Parents' Christmas Party.

The Infant Consultations.

The attendance has on the whole been excellent. Every effort is made to concentrate on the educational side of the work.

The Ante-Natal Clinics.

The attendance at these clinics has been satisfactory. The total number of cases attending during the year was 490. The average attendance per clinic was 14.

The cases examined included the following :—

Contracted Pelvis.

(a) Small round.	(1)	External conjugate between 7" and 7.4".	31
	(2)	,, ,, below 7"	9
(b) Flat round	(1)	External conjugate between 7" and 7.4".	59
	(2)	,, ,, below 7"	9
(c) Justo Major Pelvis			67

Heart Disease

Double Mitral	1
Bad Mitral Regurgitation	1
Aortic and Mitral Disease	1
Albuminuria of marked degree without other serious signs	8
Hyperpiesis	3
Threatened Eclampsia	8
Pyelitis	3
Case known to end as A.P.H. probably accidental haemorrhage	1
Case known to end as A.P.H.,—placenta praevia	1
Persistent glycosuria	1
Chorea in pregnancy	1
Tuberculosis in pregnancy	1
Gonorrhoea	2
Syphilis	1
Serious oedema of labia majora	1
Retroverted gravid uterus	7
Twins	1
Case known to end as craniotomy	1
(This patient had already engaged her private doctor and her measurements were slightly **above** normal).	
Miscarriage	6
Salpingo-ovaritis	1
Stenosed cervix	1
Retroversion (in non-gravid uterus)	3

The Dental Clinic.

Until September 1929, all the dental work under the Maternity and Child Welfare Scheme was done at the Carnegie Institute by two part-time dental surgeons. Subsequently clinics were opened at the Stratford Road Centre. In consequence, this section of the work is specially dealt with elsewhere.

The Remedial Exercise Clinic.

One hundred and seventy-three children a tended this clinic during the year. The reasons for attendance were as follow:—

Condition.	No. of Cases.	No. of Attendances.
Knock knee	42	182
Flat foot	48	217
Bow legs	28	132
Bad posture	16	94
Chest deformities	17	98
Constipation	12	24
Paralytic conditions	6	62
Other conditions	4	14
	173	823

The results obtained at this clinic have been sufficiently encouraging to lead to the appointment of a half-time Remedial Gymnast, and in 1930 four clinics at other centres will be opened in addition to that at the Carnegie Institute.

The cases treated are mainly minor orthopaedic defects, or treatment is given for more serious conditions, where attendance at the Orthopaedic Hospital cannot be secured for any reason.

The Ultra-Violet Light Treatment Clinic.

Particulars are included with the general statement on this subject.

The X-Ray Clinic.

The special enquiry carried out as to the progress of healing in rickets under ultra-violet light treatment has been completed. A large number of cases of pulmonary disease and defect have been studied with the help of radiographs, both in the Babies' Hospital, and at the Carnegie Institute. An account of this enquiry is included in another portion of the report.

Radiographs have been of great value in relation to the diagnosis of many somewhat obscure conditions, including cases of congenital heart disease, bone disease, deformities, etc., and have also been of assistance in securing early operative treatment for cases of pyloric stenosis.

Radiographs.

Rickets	69
Normal Bones	214
Pyloric Stenosis	10
Chest Conditions	198
Dental Cases	4
Other Conditions	60
Spoilt Films (patient moved)	20
Total	575

Observation Ward.

During the year 1929, there were admitted to the ward 90 children, in addition to 18 breast fed babies with mothers. Of the 90 children, eight were re-admitted for a second time, making the total admissions 116 children and 18 mothers.

The 90 children fall into the following age groups:—

Under 3 months	11
3—6 months	16
6—12 months	15
1—2 years	22
2—5 years	26

The cases admitted were suffering from the following diseases or disorders:—

(1) *Gastro-Intestinal Group.*

Sub-acute entero-colitis	5
Chronic enteritis	8
Habit vomiting	8
Intestinal dyspepsia of putrefactive type	9
Intestinal dyspepsia of carbohydrate type	5
Intestinal dyspepsia of fat type	3
Coeliac disease	4
Chronic constipation	1
	43

(2) *Respiratory Group.*

Chronic broncho-pneumonia	7
Asthma	1
Pink disease	2
Chronic sinusitis	1
Pneumothorax	1
	12

(3) *Group of Constitutional or Glanular Disorders.*

Hypothyroidism	1
Scurvy	1
Diabetes insipidus	1
Constitutional anaemia	3
	6

(4) *Group of Nervous Disorders.*

Mental deficiency	1
Cerebral diplegia	1
Microcephaly	1
	3

(5) *Group of "Debilities."*

Due to mismanagement	5
,, ,, underfeeding	3
,, ,, anterior poliomyelitis	1
,, ,, diphtheria	1
,, ,, prematurity	5
	15

(6) *Other Conditions.*

Congenital morbus cordis	1
Chronic adherent pericardium	1
Pyelitis	5
Pain due to flat foot	1
Tuberculous meningitis	1
Tuberculous peritonitis	1
Septicaemia	1
	11

Results.

Very greatly improved or quite cured	50
Improved	26
In statu quo	6
Died	7
Transferred owing to acute illness (appendicitis)	1

BREAST-FED BABIES.

Eighteen babies were admitted with their mothers, either with the view of establishing lactation, or because of the illness of the baby.

The types of cases dealt with were as follow:—

Healthy babies	9
Debility due to prematurity or immaturity	5
Vomiting due to mismanagement	1
Chronic broncho-pneumonia and cleft palate	1
Pyelitis	1
Enteritis	1

All these cases either completely recovered or improved greatly.

As regards breast feeding the following results were obtained:—

Breast-feeding fully established	5
,, ,, partially ,,	9
,, ,, abandoned ,,	4

INVESTIGATIONS.

It will be remembered that the primary reason for admission to the Ward at the Carnegie Institute is to study the condition from which the child is suffering, either from the point of view of diagnosis, or treatment. The majority of the cases are those in which the children have failed to thrive, although they have already received treatment and care.

During the year attention has been directed primarily to the study of *chronic pulmonary conditions* and to *anaemias*. The result of the former study, which has included out-patients as well as ward cases, is given under the special report on "prolonged pulmonary infection."

The study of ANAEMIAS has been carried out by Dr. Ursula COX, and, it is probable, will be more fully reported in the medical journals. In order to be of value, such work must be done by one individual, so as to ensure comparable observations. It therefore cannot be correlated with the work at the Babies' Hospital. These observations, though limited in number, have a very definite value. The main conclusions to be drawn are as follow:—

(a) The treatment of anaemia as an entity by ultra-violet light is of little value.

(b) The treatment of simple secondary anaemias by inorganic iron by the mouth gives as good results as more elaborate procedures (excluding blood transfusion).

(c) In no case should the treatment of anaemia be undertaken without an investigation as to the underlying cause.

(d) The importance of considering twin births and syphilis in this connection is emphasised.

(e) The importance of supplying iron to artificially fed infants and particularly to twins as advocated by Dr. Helen Mackay, receives some confirmation.

(f) The improvement in general health long precedes the improvement in the blood picture.

OBSERVATIONS ON PROLONGED PULMONARY INFECTION IN CHILDREN UNDER FIVE YEARS.

(An investigation carried out by DR. CASSIE at the Carnegie Institute).

The close scrutiny of children suffering from chronic ill health made it obvious that in a high percentage of cases the underlying condition was a chronic pulmonary infection. It was decided to make an attempt to study such conditions in some detail by means of clinical and radiographical observations, and when possible and desirable to follow up the cases for a prolonged period. In many instances the children were sent for ultra-violet light treatment and so came under observation; in other instances they were sent for special observation by the Child Welfare Medical Officers; in the more obscure cases they were sent for an opinion to the consultation clinic. In this way 126 children between 1 and 2 years, and 22 cases under one year were made available for study. It will be understood that in every case the child was not first seen when suffering from acute pulmonary disease. It is now an accepted axiom that acute pulmonary infection in young children commonly takes the form of broncho-pneumonia, a condition in which the primary lesion is one of the interstitial tissue including the lymphatics and blood vessels, and only involves secondarily the lung alveoli themselves. The condition is thus sharply differentiated from lobar pneumonia which is primarily an alveolar catarrh and is essentially the pneumonia of the adult. The pathology of the disease explains the fact that while a broncho-pneumonia may appear as an acute infection indistinguishable in its clinical features from lobar pneumonia, it may readily occur as a sub-acute infection having a prolonged and chronic course or even as a latent chronic infection giving rise to few or no clinical signs except general failure of health, malnutrition and slight pyrexial attacks. Naturally in a study of this kind the sub-acute and chronic forms have been much in evidence, particularly since many of the children came from poor homes where the possibility of a rapid convalescence is greatly diminished by bad hygienic and dietetic conditions.

In many of the cases there is a history of repeated attacks of pneumonia, but one is left with the impression that the condition is actually a "flare up" of a chronic infection, rather than a fresh attack.

Another point of importance which emerges is the comparative frequency of tubercular lung infection in these young children, as a sub-acute or chronic condition. In the group under review, two children were definitely diagnosed as suffering from the condition, and admitted to the sanatorium. Another child was considered suspicious and was admitted for observation. Two others are still at home under observation with lung signs and a positive tuberculin re-action. One infant died and a large cavity was found in the right upper lobe. The same condition was found in a second post-mortem, but in this case no radiograph was taken.

Two tables have been prepared (A) dealing with the larger group of children between one and five years, and (B) dealing with the smaller group under one year.

TABLE A.

TOTAL CASES=126. Defects Shown.	Total.	Previous Health Good.		Previous Illnesses. Pneumonia.		Bronchitis.		Other Conditions.		General Health Affected.		Physical Signs Present.		General Health Improved.	
Increased Root Shadows	39	16	(41%)	22	(56%)	13	(33%)	4	(10%)	29	(74%)	14	(36%)	14	(36%)
Increased Lung Striae	13	4		10		2		—		9		4		5	
Bronchiectasis	2	—		2		—		—		2		2		—	
? Bronchiectasis	7	6		4		1		—		5		5		1	
Tuberculosis	1	—		2		2		—		1		1		—	
? Tuberculosis	4	1		3		—		—		3		3		—	
Dimming of Lung Fields	11	5		5		1		1		5		3		5	
Changes showing two or more conditions	36	12	(33%)	20	(56%)	11	(31%)	2	(6%)	30	(83%)	20	(56%)	21	(58%)
Normal, but having previous chest infections	11	7		9		2		—		4		3		8	
Consolidation	1	—		—		—		—		1		1		—	
Pneumo thorax	1	—		1		—		—		1		1		—	
	126	51	40%	78	62%	32	25%	7	6%	90	71%	57	45%	54	43%

Table A shows the classification of radiographs according to the most prominent lesion shown. It will be seen that in a high proportion of cases 39 or 31% increased root shadows were the main feature of the film, but in no less than 76 cases or 60% more definite and serious lesions were found.

Below are given a group of conditions which were found as secondary changes, and which are included in the table under "two or more conditions present."

Chronic pulmonary fibrosis	3
Consolidation	3
Fluid	3
Thickening of pleura	15

In 11 cases or 9% the radiograph showed no abnormality. Nine of these children had previously suffered from pneumonia and two from bronchitis. The general health was still affected in four cases, but the lung condition was fairly satisfactory. In four cases, however, some physical signs (accompaniments) were still present.

Taking the cases as a whole, it will be noted that there was a history of lung disease in 107 or 85% while in 90 or 71% the general health was markedly affected when first seen. In only 57 cases or 45% were definite physical signs present in the thorax.

TABLE B.

TOTAL CASES=22. Defects Shown.	Total	Previous Health Good	Previous Illnesses. Pneumonia	Bronchitis	Other Conditions	General Health Affected.	Physical Signs Present.	General Health Improved.
Increased Root Shadows	6	5	2	1	1	4	3	2
Increased Lung Striae	1	1	1	—	—	1	1	—
Bronchiectasis ?	2	1	1	—	—	2	2	—
Dimming of Lung Fields	3	2	1	1	—	2	1	1
Fibrotic Changes	1	—	—	—	1	1	—	—
Tuberculosis	1	—	1	—	—	—	—	—
Pleurisy	1	—	1	—	—	1	—	—
Changes showing two or more conditions	7	—	1	2	1	4	2	4
	22	9	8	4	3	15	9	7

The cases in this group were mainly young infants suffering from obscure pyrexial attacks and malnutrition with some physical signs in the lungs in about half the cases. A surprising number showed chronic pathological changes. As secondary conditions the following were noted:—

Consolidation	1
Thickening of pleura	7

Three children in this group died while under observation, viz., a tubercular case, a child with sub-acute pneumonia (dimming of lung fields) and a child with marked fibrotic changes.

In both groups the improvement in general health was slow and while under observation only 61 or 41% recovered to any marked extent. It has been stated recently that chronic lung conditions fail to clear up in the presence of enlarged tonsils and adenoids. In the present group of cases, this complication was found in 19 cases or 13% of the total.

In a large number of cases, radiographs were taken after periods of three and six months. In 12 cases definite improvement was noted, while in 10 cases, extension of the disease had occurred. In the majority the radiograph showed practically no change. It should, however, be remembered that repeated radiographic examinations are more readily obtained in the worst cases, and that in a number of instances where good results had been obtained, the child was restless and frightened in the X-ray room, and the film was spoilt.

Reviewing the enquiry as a whole, three main conclusions are reached.

(1) The value of radiographic observations from the point of view of diagnosis is very fully established. In the greater number of these cases without the radiograph the diagnosis would have remained very doubtful.

(2) The serious damage suffered by the lungs in broncho-pneumonia leaves chronic lesions which not only cause prolonged ill-health, but which are in some cases incurable, e.g., fibrosis, and bronchiectasis.

(3) The need for further provision of convalescent beds for young children recovering from broncho-pneumonia is emphasised. Convalescence under the best conditions is often extremely prolonged, and no measures such as ultra-violet light treatment are sufficient unless associated with good dietetic and hygienic conditions.

ILLUSTRATIVE CASES.

1. J.M. AGE 4½ YEARS. Measles and pneumonia at one year (prolonged illness). Pneumonia at four years.
Radiograph = Bronchiectasis Marked pulmonary damage.
Clinically—Much cough accompaniments + + Malnutrition.
Under observation 18 months. Little improvement, now at school.

2. M.L. AGE 2 YEARS. Whooping Cough at 18 months. Never well since.
Radiograph = Mottling of both lung fields. ? Miliary tubercle.
Clinically—Cough and vomiting, left base involved. Pyrexia. Positive tuberculin re-action.
Sent to sanatorium.

3. G.B. AGE 4 YEARS. Whooping Cough at 6 months.
Broncho-pneumonia 1 year (Children's Hospital).
" " 18 months (Selly Oak Hospital).
" " 3 years 10 months (Children's Hospital).
Radiograph = Mottling of lung field and increased root shadows.
Clinically—General health poor. Attacks of bronchitis frequent.

4. S.A. AGE 4 YEARS. No special illness. Very nervous hysterical child.
Radiograph = Consolidation at right base. Increased root shadows.
Clinically—Pyrexia. Some cough. Tuberculin re-action positive.
Sent to sanatorium.

5. H.J. AGE 18 MONTHS. Bronchitis three times. Pneumonia two months ago. Poor health.
Radiograph = Increased shadows in lung fields. ? Post-pneumonic.
Clinically—Thin. Narrow chest. Breath sounds at base inaudible. *Two months later*, much improved. Radiograph normal.

6. J.F. AGE 2 YEARS 2 MONTHS. Pneumonia 1 year 10 months. Very poor general health.
Radiograph = Marked increase in root shadows and lung striae.
Clinically—Rapid respirations. Many accompaniments over lungs. Chest deformed.
Seven months later. No improvement. Cyanosed. Right base = impaired note. Admitted to Carnegie Institute Ward and Babies' Hospital.
After two month's treatment, marked improvement. Chest clear. Breathing normal. Radiograph = No abnormality seen.

7. E.E. AGE 2 YEARS. Pneumonia. Three attacks.
Radiograph = ? Bronchiectasis.
Clinically—Very poor general health. Cough, sputum. Impaired note at right base. *A year later*. Has been in three hospitals (Dudley Road, Children's, and Lodge Road Hospitals). Definitely bronchiectasis.

8. N.P. AGE 4 YEARS. Pneumonia, four attacks.
Radiograph = Marked increase in root shadows and striae. ? Pericardial adhesions.
Clinically—Much cough. Very thin. Impaired note, many accompaniments. Tuberculin reaction negative. Treated at The Babies Hospital. *Two years later*. Radiograph as before. General condition as before. At school.

ULTRA-VIOLET LIGHT TREATMENT CLINICS.

The number of clinics has now increased to nine, and the number of children treated totalled 1,365. The majority were treated for rickets and debility. It is hoped to increase the prophylactic treatment of rickets so as to secure the elimination of the disease. While there is a great improvement as regards its incidence and severity, the condition remains responsible for much ill health and crippling, as well as being an indirect cause of death, rickety children succumbing very readily to pulmonary infections. The effect of artificial sunlight in shortening convalescence after catarrhal infections makes it of value after attacks of measles, whooping cough and pneumonia.

An enquiry has been made during the year as to the results of treatment. This may be summarised briefly as follows:—

The most easily and accurately estimated data are those of weight, and the enquiry was particularly directed to the effect of artificial sunlight on the weights of children under treatment. It was possible to study 346 records, these being sufficiently complete for the purpose.

It was found that the children under treatment as a whole made a higher average gain in weight than the " normal " child, although they were unhealthy and had failed to gain in weight for some time. The type of home did not effect the result, the majority coming from good homes. No free food or cod liver oil was given at the clinics. The most marked effect is seen between one and four, when city children suffer most from lack of sunlight. Taking all groups, 54% gained above the average, 24% below the average, and 21% at the average. None lost weight

owing to the cautious dosage used. The improvement in general health was also carefully studied and it was noted that in 271 cases reliable records were available. It was found that 83% improved, while in 37% the improvement was most marked. Particularly good results were obtained in rickets, debility and catarrhal cases.

Rickets heals in every case, the amount of treatment depending on the severity of the condition.

Children requiring treatment are recommended from the Child Welfare Centres or by family doctors. They are then seen by medical officers at prescribing clinics, a careful general examination is made, and the dosage is prescribed. Some cases are considered unsuitable and are referred back to their doctors. The dosage and method of treatment at the Birmingham Clinics have always been standardised, and have been carefully watched to avoid over exposure. The results from this procedure have been most satisfactory. It is preferable that the treatment should be in the hands of a limited number of medical officers in order to secure more uniform observations and methods.

Attendances at Ultra Violet Light Clinics during 1929.

Centres:

Conditions.	Aston Street.		Carnegie Institute		Floodgate Street		Harborne		Hope Street		Lichfield Road		Stratford Road		Stirchley		Selly Oak			
	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	No. of Cases	Attendances	Total Number of Cases	Total Number of Attendances
Children Treated.																				
Rickets	31	308	24	300	44	593	6	132	31	323	19	268	89	861	16	240	4	47	264	3072
Prophylaxis (Rickets)	19	58	18	167	21	222	—	—	4	27	6	92	48	173	7	73	5	72	128	884
Debility	24	238	54	596	84	876	40	492	53	722	20	494	80	1401	37	481	8	80	400	5390
Anaemia	2	33	8	102	12	140	1	12	2	17	6	45	13	85	3	20	—	—	47	454
Catarrhal Children	23	174	45	486	13	151	24	274	20	243	12	205	29	275	7	65	7	55	180	1928
Convalescents:																				
Whooping Cough	4	41	3	37	3	61	4	65	1	12	8	114	8	36	7	76	—	—	38	442
Measles	—	—	6	62	3	37	1	1	—	—	6	92	—	—	14	208	—	—	30	400
Lung Conditions	6	107	21	220	7	100	—	—	5	54	18	174	2	20	10	184	—	—	69	859
Asthma	—	—	1	3	1	8	1	6	—	—	1	12	1	6	1	9	—	—	6	44
Enlarged Glands	1	15	1	1	—	—	1	26	—	—	2	30	—	—	—	—	—	—	5	72
Skin Conditions	—	—	4	45	1	6	1	23	2	21	—	—	—	—	—	—	—	—	8	95
Nervous Children (Mismanagement)	2	15	21	230	7	71	2	47	1	10	2	40	2	61	7	65	2	8	46	547
Other Conditions	11	101	57	529	5	28	5	116	—	—	30	320	26	201	3	27	7	62	144	1384
Total	123	1090	263	2778	201	2293	86	1194	119	1429	130	1886	298	3119	112	1448	33	334	1365	15571
Mothers Treated	1	15	17	232	1	5	4	96	6	109	1	16	1	28	3	55	2	17	36	573

DENTAL CLINICS.

The increasing demand for dental treatment for ante-natal cases, as well as for young children, with the increasing number of treatment clinics required, made it obvious that the appointment of a whole-time dentist was necessary. Mr. Payton who had previously done part-time work for the Carnegie Institute accepted the post and commenced his duties on September 1st. It was arranged to open a second dental clinic at the Stratford Road Child Welfare Centre and in a short time nine weekly treatment clinics were in operation, five at the Carnegie Institute, and four at Stratford Road Centre. The remaining two afternoons are devoted to inspection clinics at the various Centres, where the dentist also gives a health lecture. It had been hoped to devote four afternoons to these inspection clinics, but the pressure on the treatment clinics only allowed this to be done for a few weeks.

The Committee decided to institute the provision of dentures for necessitous mothers on a scale of payment determined by the family income per head after deducting the rent. This scheme came into operation in September, but cases to whom it applied did not actually receive their dentures for some months.

The following table gives the figures for the dental clinics for 1929:—

No. of clinics held	226
Mothers attending	3,191
Children attending	1,382
Local anaesthetics	664
Gas	2,161

CITY BABIES' HOSPITAL.

During the year 1929, 403 children were admitted to the Babies' Hospital, Lodge Road, the majority being over one year of age, in contrast to the last two years. In 1927 the majority were under one year and in 1928 the division was about equal.

There was more infection than in previous years, but this is accounted for by the greater number of admissions.

Admissions.

1927.	1928.	1929.
203	288	403

The number of beds at the Babies' Hospital was increased from 25 to 50 in October, 1927.

The average duration of stay during 1929 was 40 days, and the condition on discharge was as follows:—

Number admitted	0—1 yr., 146 1—2 yrs., 147 2—5 yrs., 110	403
,, discharged		392
,, recovered		281
,, improved		58
,, in statu quo		53
,, of deaths		17

The main headings under which the cases were classified are shown below:—

	0—1 years.	1—2 years.	2—5 years.	Total.
Debility	19	51	49	119
Marasmus	18	1	—	19
Malnutrition	3	6	11	20
Prematurity	10	—	—	10
Mismanagement	7	6	8	21
Diseases of Circulatory System	6	4	2	12
Pneumonia	3	6	6	15
Bronchitis	9	6	1	16
Other diseases of the respiratory system	2	6	2	10
Enteritis	10	16	1	27
Other diseases of the digestive system	22	3	1	26
Diseases of nervous system	5	2	2	9
Diseases of urinary system	4	4	4	12
Mental deficiency	3	—	1	4
Rickets	8	21	18	47
Otitis media	4	—	—	4
Impetigo	1	2	2	5
Other diseases	11	8	8	27

History of Infectious Disease.

	Admitted Incubating Disease.	Contacts.	Total.
Whooping Cough	7	5	12
Measles	3	8	11
German Measles	1	—	1
Mumps	2 (1 Nurse, 1 Child)	2 (1 Nurse, 1 Child)	4
Diphtheria	4	1	5
Dysentery	1 (carrier)	1	2
	18	17	35

A nurse was sent to the Fever Hospital diagnosed as diphtheria, but proved to be a case of tonsillitis only.

Two children whose swabs were positive for the diphtheria bacillus were returned from the Fever Hospital in a very short time, as the causal organisms proved to be avirulent.

After the cases occurring on June 8th, 10th, 21st and 27th, a nasal swab was taken from a child who had been in the two wards where cases of sore throat had occurred. The virulence test was positive and after the child was removed to the Fever Hospital, there were no more cases.

Staff.

During the year there were—

2 cases of jaundice (sent to General Hospital)
2 cases of mumps
1 case of tonsillitis (sent to Fever Hospital).

Influenza.

After the epidemic of influenza 36 children were transferred from Pype Hayes Convalescent Home to the Babies' Hospital to convalesce after influenzal pneumonia.

Cases Transferred.

The following children suffering from infectious diseases were transferred to other hospitals :— eight cases of diphtheria, eight cases of measles, eight cases of whooping cough and one case of tuberculosis of the lungs. Four cases of measles and two of whooping cough were sent home.

The following were transferred to the Children's Hospital :—

3 cases	otitis media
2 ,,	pyloric stenosis
1 ,,	retropharyngeal abscess
1 ,,	pyonephrosis
1 ,,	cerebellar tumour
2 ,,	bronchiectasis
1 ,,	empyema.
11	

Deaths.

There were 17 deaths during the year, 12 under one year and 5 over one year, as follow :—

Under One Year.

Broncho-pneumonia and enteritis	1
Broncho-pneumonia and cleft palate	1
Prematurity	3
Broncho-pneumonia and prematurity	1
Zymotic enteritis	1
Broncho-pneumonia and maramus	1
Atelectasis and prematurity	1
Convulsions—pyelitis and septicaemia	1
Whooping cough, broncho-pneumonia and enteritis	1
Tuberculous meningitis	1
	12

OVER ONE YEAR.

Broncho-pneumonia	1
Broncho-pneumonia and whooping cough	1
Broncho-pneumonia and enteritis	1
Broncho-pneumonia and zymotic enteritis and septicaemia	1
Pneumococcal septicaemia	1
	5

LIGHT TREATMENT.

Forty-five toddlers and 53 babies received light treatment during the year. This number is smaller than usual owing to the large amount of natural sunshine during the summer of 1929.

INVESTIGATIONS.

Dr. Crosse, the Resident Medical Officer, carried out the two following investigations:—

1. *Blood Pressure in Children under five years.*

Type of Child.

Suffering from general debility, mismanage ment, errors of feeding, rickets, etc. Children with diseases of the circulatory system, urinary syste m and with other conditions which might affect the blood pressure, were eliminated.

Divided into age groups 0—1 years, 1—2 years and 2—3 years; and as 0—1 years showed great variation, this group subdivided into 0—3 months, 3—6 months, 6—9 months and 9—12 months.

Instrument.

Baum and Co.'s baumanometer with special small arm-piece.

Method.

Investigations roughly two hours after fee ds or meals. Child sitting up, or propped up in sitting position in case of infant.

Arm-piece applied to upper arm—pressure increased until radial pulse no longer felt—then pressure gradually reduced, and with stethoscop e over brachial artery at elbow, two readings were noted.—

(1) Pressure at which faint arterial sounds were first heard = *systolic pressure.*

(2) Pressure at which loud sharp sounds were replaced by faint sounds = *diastolic pressure.*

Results of Observations.

32 *cases* 0—1 *years.*

Average systolic	80.4	m.m.	Hg.	} average difference = 42.6
,, diastolic	37.8	,,	,,	
Highest systolic	110	m.m.	Hg.	
Lowest ,, ...	28	,,	,,	
Highest diastolic	71	,,	,,	
Lowest ,, ...	6	,,	,,	

Divided into smaller groups (8 *in each*)

	0—3 mths.	3—6 mths.	6—9 mths.	9—12 mths.
Average systolic	59.2	78.9	85.2	91.3
,, diastolic	22	39	40.1	54

30 *cases*, 1—2 *years.*

Average systolic	98.3	m.m.	Hg.	} difference = 42.
,, diastolic	56.3	,,	,,	
Highest systolic	129	m.m.	Hg.	
Lowest ,, ...	83	,,	,,	
Highest diastolic	96	m.m.	Hg.	
Lowest ,, ...	30	,,	,,	

32 *cases* 2—3 *years.*

Average systolic	108.3	m.m.	Hg.	} difference = 44.6
,, diastolic	63.7	,,	,,	
Highest systolic	138	m.m.	Hg.	
Lowest ,, ...	80	,,	,,	
Highest diastolic	90	m.m.	Hg.	
Lowest ,, ...	36	,,	,,	

II. *Investigations on Urine in Children under five years.*

Cases Investigated.

Routine examination of urine passed the day after admission by children admitted from any cause, except recognised disease of the urinary tract.

Investigation and Method.

Urine allowed to settle in specimen glass for 12 hours. Upper portion decanted off, lowest portion centrifuged, and deposit examined on slide with coverslip. Total area covered by coverslip examined under microscope for the *presence of pus.*

Results of Investigations.

50 males.

44 cases	no pus
5 cases	occasional pus cells (no symptoms)
1 case	much pus (definite case of pyelitis)

50 females.

23 cases	no pus cells
25 cases	occasional cells (in all except 1 case, children over 1 year)
2 cases	much pus (definite cases of pyelitis)

Catheter Specimens taken in 25 cases showing occasional cells, and of these only six cases showed occasional cells (almost the same percentage as males). No case showed evidence of *vaginal discharge.*

Conclusions.

(1) Shows value of catheter specimen in female children over one year, even in absence of obvious vaginal discharge.

(2) Frequency in males and females (catheter specimens) of pus cells (occasional only) is about the same—about 10—12%.

TREATMENT OF EAR, NOSE, THROAT AND EYE CONDITIONS.

The cases examined during 1929 at the Children's Hospital for the treatment of the above conditions, were as follows:—

Eyes, ear and throat cases	246
Tonsils and adenoids—	
Operations and Examinations	587
Examinations only	116

CITY MATERNITY HOME, HEATHFIELD ROAD.

The number of cases admitted during 1929 was 437, an increase over the previous year. The average duration of stay was 14 days, and medical help was sought in 121 cases. The reasons for which medical help was sought, were as follows:—

For Mother.

1	Ante-partum haemorrhage.
1	Prolapse of cord.
15	Delayed second stage of labour.
4	Foetal distress.
1	Rigid perineum.
1	,, os.
3	Adherent placenta.
11	Breech presentations.
2	Face presentations.
3	Occipito-posterior position.
58	Perineal tears.
2	Maternal distress.
4	Post-partum haemorrhage.
1	Ischio-rectal abscess.
1	Ascess of buttock.
1	Puerperal insanity.
1	Secondary post-partum haemorrhage.
3	Pyrexia.

For Infant.

1	Pyrexia.
1	Syphilis.
1	Congenital heart.
2	Premature babies.
2	Atelectasis.
1	White asphyxia.

There was no case of puerperal sepsis, but three cases of puerperal pyrexia occurred with recovery.

Among the infants, 15 children suffered from discharging eyes, and in one of these cases, the condition was definitely ophthalmia neonatorum. There were no cases of pemphigus neonatorum.

In six cases there was failure to establish breast feeding. In three cases this was due to the mother's ill-health, in two cases to breast deformities, and in one case the baby refused the breast.

The foetal deaths are given below:—

Stillbirths, 10.	1	Macerated foetus.
	1	Anencephalic foetus.
	5	Premature birth.
	2	Breech deliveries.
	1	Prolapse of cord.

Deaths within 10 days of birth, 7.	3	Prematurity.
	1	Syphilis.
	1	Congenital heart.
	1	Cardiac failure.
	1	Atelectasis.

Every effort is made to instruct the mother as to the care of the child before discharge, and she is advised to attend the Child Welfare Centres, subsequent to leaving the Home.

THE CITY MATERNITY HOME, WAKE GREEN ROAD, MOSELEY.

The Red Cross Hospital at "Sorrento," Wake Green Road, was closed in 1928, and the building handed over to the Lord Mayor for the use of the city. It was decided to convert the building into a Maternity Home, since the need for more accommodation for maternity cases was pressing, particularly in the case of women living in lodgings, a need which was by no means met by the Heathfield Road Maternity Home. Here there was great pressure on the beds, this being also the case with the maternity wards of the poor law hospitals.

The building required many alterations and repairs, but was finally adapted successfully as a maternity home with 21 beds.

Premises for an ante-natal clinic were provided in the former stables, by a careful alteration of the buildings.

The Home was opened on May 28th. The Lord Mayor and Lady Mayoress paid an inaugural visit on that day, as well as many Councillors and others interested. General satisfaction was expressed with the arrangements.

The result of the year's work is given below.

The number of cases admitted during 1929 was 87, and the average duration of stay was 15 days. Medical help was sought in 20 cases.

The reasons for which medical help was sought were as follows:—

For the Mother.	*For the Infant.*
2 Unreduced R.O.P. position.	1 Feebleness.
1 Uterine inertia.	
1 Face presentation.	
3 Delayed second stage.	
1 Abnormal presentation.	
2 Post-partum haemorrhage.	
2 Adhered placenta and membrane.	
6 Ruptured perineum.	
1 Rise of temperature (12 hours only).	

There were no cases of puerperal sepsis or pyrexia. There were three cases of slightly discharging eyes but none of ophthalmia neonatorum. In six cases there was failure to completely establish breast feeding, but five of these infants were partially breast fed.

The foetal deaths are given below:—

Stillbirths, 3.	1	Instrumental delivery.
	2	Albuminuria in mother during pregnancy.
Death within 10 days of birth.	1	Inanition.

During their stay in the Home the mothers are taught how to care for and feed their babies. The importance of breast feeding is insisted on. The educational side of the work is developed as far as possible, particularly in relation to first babies.

PROVISION FOR CONFINEMENTS AT THE COST OF THE PUBLIC HEALTH DEPARTMENT IN HOSPITALS OF THE BOARD OF GUARDIANS.

During the year under review 552 patients were admitted to Dudley Road Hospital and 393 to Selly Oak Hospital for confinement because of the inadequacy of their home conditions.

The cost to the Public Health Department was £5,045. The amount of money recovered from the patients was £1,049.

PYPE HAYES HALL CONVALESCENT HOME FOR MOTHERS AND BABIES.

The figures for 1929 are as follow:—

Mothers admitted	400
Babies ,,	382
Babies admitted without their mothers	8
Ante-natal cases admitted	21

The Home was very well filled throughout the year and there was a long waiting list during the summer months. There can be no doubt that a larger amount of accommodation is required for women suffering from debility and anaemia after childbirth. The expectant mothers have also greatly appreciated the rest and change which they have obtained during their stay.

The Home was closed as far as the ordinary patients were concerned during March, when it was opened as an emergency hospital for young children suffering from pneumonia. Owing to a fortunate coincidence, cots which had been ordered for Little Bromwich Hospital were available for use, and in this way it proved possible to effect the transformation within four days of the decision being made. Dr. Ursula Cox was placed in charge of the hospital and was assisted by the Resident Medical Officer of the Babies' Hospital, Lodge Road. Dr. Laurence Ball was called in consultation on several occasions when necessary.

The following account of the use of the Home as a pneumonia hospital has been furnished by Dr. Cox.

Pneumonia Cases Treated.

During the influenza epidemic, the Convalescent Home at Pype Hayes Hall was converted, from March 1st to March 27th, into a hospital for children under five suffering from pneumonia.

Six wards were made, of which one was used for children with measles complicated by broncho-pneumonia, one for pneumonia with whooping cough and the remaining four for cases of pneumonia without other infectious complications. The hospital was staffed by volunteers from among the Health Visitors who are trained nurses.

Sixty-five children were admitted during the period that the hospital was open. The great majority of these cases were sent by private doctors. A few were sent by the Children's Hospital from its out-patient department.

Analysis of the Cases.

Total admissions	65
Under two years	38
Over two years	27
Cases of pneumonia	56
,, ,, bronchitis	4
,, ,, influenza (without pneumonia)	3
,, ,, measles (without pneumonia)	1
,, ,, pneumococcal septicaemia	1

In the 56 cases of pneumonia the condition occurred as a sequence in the following:—

Measles	8 cases
Whooping cough	9 cases
Tuberculous peritonitis	1 case

The following complications were noted:—

Enteritis	5 cases
Otitis media	7 ,,
Intussusception	1 ,,
Meningitis	1 ,,
Empyema	1 ,,
Infarction of left brachial artery	2 ,,

The results were as follow:—

Discharged recovered from Pype Hayes Hall	3
Transferred convalescent to the Babies' Hospital, Lodge Road	38
Transferred convalescent to the Carnegie Institute	1
Transferred to the Children's Hospital	3
Died	20

Of the three children who were transferred to the Children's Hospital from Pype Hayes Hall, one was a case of meningitis, one a case of empyema, and one a case of intussusception.

The ultimate results in the 39 cases transferred to the Babies' Hospital and Carnegie Institute were as follow:—

Discharged in good condition, and with chest clinically free from signs	27
Discharged in good condition, but with some clinical signs of incomplete resolution still present in chest	9
Transferred with whooping cough to City Fever Hospital (ultimately made a good recovery)	1
Suffered a relapse and died in Babies' Hospital	2

From these figures it emerges that of the 65 cases admitted to Pype Hayes Hall, 40 made a good recovery, 22 died and three were transferred to the Children's Hospital, giving a death-rate of 22 out of 65 or 33.8%. It is more instructive however, to consider the death-rate in relation to the cases of pneumonia. Of the 65 children admitted to Pype Hayes, 56 actually had pneumonia, and three of these were transferred to the Children's Hospital, leaving a total of 53 of which number 21 died. (One of the 22 deaths was a death from septicaemia). This gives a pneumonia death-rate of 40%.

This figure of 40% is remarkably low taking into consideration the following facts:—

(1) The cases sent to Pype Hayes Hall were almost all very severe cases. Some cases arrived almost moribund and died shortly after admission.

(2) All the patients were under five and 38 out of the 65 were under two years.

(3) Practically all the cases were cases of *broncho*-pneumonia. There was only one case of definite lobar pneumonia.

(4) Many cases suffered from serious complications, viz.: measles, whooping cough, enteritis and congenital heart disease.

Broncho-pneumonia in early childhood is recognised to be a very fatal disease and a death-rate of 60% is not considered high. Some observers put the death-rate as high as 75% to 80% in children under two years.

The low death-rate of 40% is probably attributable to two factors:—

(1) Highly efficient and skilled nursing.
(2) The extremely fine weather which prevailed during the period making it possible for the children to be nursed out-of-doors.

The cases ran the usual course with prolonged pyrexia, lysis, and slow resolution. It is noteworthy that nine cases were discharged after several weeks sojourn in the Babies' Hospital with resolution still incomplete, though in good health. Eleven X-ray reports are available taken at various periods after the acute attack, and these are interesting as showing that damage to the lungs is very slow in recovering, even if not permanent.

X-rays taken in August, 1929:—

A.C. Chest clear.
J.C. ,, ,,
Z.C. Increased striae throughout both lungs.
A.P. Increased shadows at root and right base.

X-rays taken December, 1929 *and January*, 1930:—

D.R. Increased striae.
I.L. Increased shadows at roots and right base.
L.H. Dimming of left lung field, increased root shadows.
P.A. Mottling of right lung field, thickened pleura.
R.J. Increase in lung striae. ? Bronchiectasis.
W.H. Increase in striae at right base.
P.P. Chest clear.

After periods of four to nine months only three out of these 11 photographs show lungs free from damage. This clearly illustrates the need for prolonged convalescent treatment in these cases.

HOME HELPS.

Forty Home Helps are employed, and were supplied to 374 homes in 1929. The Home Helps are distributed as follows:—

5 for Winson Green and Ladywood area.
2 for Handsworth.
5 for Hockley, Aston and Erdington.
3 for Saltley and Nechells.
3 for Selly Oak and Stirchley.
7 for Sparkhill, Acocks Green, etc.
8 for Small Heath areas.
2 for Balsall Heath.
1 for Billesley and Yardley Wood.
4 living in the centre of the town are sent to any district where their services are needed.

They attended maternity cases whether the confinement took place at home or in hospital, and also attended mothers whose illness was directly due to a recent or approaching confinement. In a small proportion of cases, Home Helps were supplied to households when the mother was sent to a Convalescent Home.

In maternity cases, it is advisable for the Home Help to be booked at least one month in advance. In emergencies such as premature births, etc., if application is made before 9.30 a.m. by the patient's husband or by the doctor or midwife in attendance, the case is visited and a Home Help sent in the same day.

Arrangements have now been made for Home Helps to undertake the charge of the home when the mother is suffering from tuberculosis and would not otherwise be able to go into a sanatorium. No advantage has yet been taken of this facility.

Many applications have been received for Home Helps to attend homes where the mother has any non-infectious acute illness and where there are young children under five years old, and it is hoped that the scheme will be extended to include these cases.

There is no difficulty in procuring suitable and capable women for the work, and a waiting list is kept. They are recommended chiefly by medical practitioners, midwives and the Health Visitors. The Home Helps are on duty from 8 a.m. to 6 p.m. and are not allowed under any circumstances to sleep in. The majority of the workers are married women who are obliged to augment their husband's income or are widows with a pension, and all of them have home ties.

The scale of fees, ranging from 1/- to 5/- per day, brings the service within the reach of all classes, and the women are supplied to every type of home. Many letters have been received expressing appreciation of the Home Helps' work.

DINNER CENTRES.

The work of the Municipal Kitchen continued to grow, as the number of dinners served at the six Maternity Feeding Centres during the year was 30,029 (26,087 mothers, 3,942 toddlers), which is an increase of 4,500 over the number in the previous year.

The scope of the work has been extended and it is now possible, not only for Nursing and Expectant Mothers, but also for children under five years of age to have daily hot, two-course dinners. The former pay 2d. and the children 1d. per meal.

The sixth Dinner Centre was opened in April at St. Vincent Street Welfare Centre, where children chiefly appeared to be in need of extra nourishment. The steady attendance of Toddlers at that Centre has been very satisfactory, and Visitors report that they have greatly benefitted by having the dinners.

The menus have been as varied as possible, and every effort has been made to see that the meals were well balanced, well cooked and punctually served.

As the work at the Municipal Kitchen became more than the Cook could do single-handed, a part-time assistant was appointed and now the Kitchen is running very satisfactorily.

ATTENDANCES.

Newtown Row	7,089		
Smith Street	5,027		
Floodgate Street	5,993		
Bloomsbury Street	4,183	30,029	
St. Vincent Street	3,208		
Hope Street	4,529		
	£	s.	d.
Cost of Food	641	5	9
Cost of Transport	87	3	0
	728	8	9
Receipts from Centres	232	16	3
Net Cost of Food	495	12	6

Net Cost per meal, excluding wages and overhead charges = 3.9d.

SUPERVISION OF MIDWIVES.

During the year 1929 the number of Midwives who notified their intention to practice in the City was 246, of whom 217 were certificated and 29 were "bona fide" under the Midwives Act of 1902. Of these 15 resided outside the City, 18 were attached to Institutions, 6 were only temporarily employed here and 2 acted only as Maternity Nurses.

During the year 24 Midwives gave up owing to various reasons, such as old age, ill-health, or from having sought work elsewhere, whilst two have died and one has had her Certificate cancelled.

There were 205 residing in the City and having private practices and 181 remaining at the end of 1929.

The Midwives attended 10,934 cases, that is 60% of the confinements of the City.

The Midwives sent for Medical Help in 3,026 cases, for the mother in 2,262 instances and for the child in 764.

Reasons for sending for Medical Help.

For Mother—2,262.

Delayed Labour	806
Laceration of perineum	674
Haemorrhage	190
Adherent Placenta	85
Abnormal Presentation	102
Abortion or Miscarriage	38
Rise of Temperature	116
Other causes	251

For Child—764.

Ophthalmia	380
Prematurity	138
Convulsions	8
Jaundice	24
Deformity	41
Skin Eruptions	42
Other causes	131

Although there has been a slight increase in cases attended by Midwives the number of medical help calls is less than last year, which shows there has been no undue advantage taken of the Insurance Scheme.

The Midwives' work on the whole has been fairly satisfactory, and as regards Ante-natal care much improvement has been noticed. The Midwives are co-operating more and more with Ante-natal Clinics and their patients now *expect* Ante-natal supervision.

The Refresher Course at the Maternity Hospital continues to operate and no less than sixty Midwives took advantage of this during 1929. The Course is much appreciated by the Midwives and is a great stimulus to their work.

A number of irregularities and neglect of the Rules have been dealt with. In two of the more serious cases the Midwives appeared before the Public Health Committee with the result that one was reported to the Central Midwives Board and her Certificate cancelled, whilst the other was seriously cautioned. During the year it was found necessary to pay compensation to two Midwives owing to septic lesions of the hands.

The practice of Handywomen is steadily decreasing, no doubt this is partly due to the Insurance Scheme.

The following visits were paid during the year:—

Routine visits to midwives	447
Special visits to midwives	74
Visits to Stillbirths	158
Visits to Opthalmia Neonatorum cases	843
Visits to Puerperal Sepsis cases	229
Visits to Nursing Homes	121
Visits to Handywomen	79
Other visits	113
Useless visits	294

The number of Midwives interviewed was 315.

PEMPHIGUS NEONATORUM.

No serious outbreak of this disease occurred during 1929 although a number of cases have been reported in the practice of Midwives. The condition is more readily recognized by the Midwife in its varying forms.

NURSING HOMES.

Under the Nursing Homes Act three new applications were made for Registration and, after inspection, were accepted.

Two of the existing Homes were closed owing to the death of the owner; whilst five were closed by voluntary retirement.

The Homes on the whole are satisfactory and the Keepers of the Homes appear willing to conform to any reasonable suggestions for improvement.

MATERNAL MORTALITY IN CHILDBIRTH.

The deaths of women classed to pregnancy and child-bearing in Birmingham during 1929 numbered 67. The number of live births was 16,803, giving a maternal mortality rate per 1,000 births of 3.99. Comparing the figures given by the Registrar General for 1928, it will be found that Birmingham is below the country as a whole (4.42), and below the county boroughs as a whole (4.45), but above London (3.59) which has the lowest maternal mortality rate of any large area in the country.

The maternal mortality in previous years is shown in the table below:—

	Deaths from Puerperal Fever.	Deaths from Other Puerperal Causes.	Rate per 1,000 Births (Total) B'ham.	Rate per 1,000 Births (Total) England and Wales.
1911	36	48	3.82	3.87
1912	27	45	3.25	3.98
1913	44	48	3.86	3.96
1914	33	41	3.19	4.17
1915	35	38	3.44	4.18
1916	31	40	3.44	4.12
1917	26	20	2.60	2.89
1918	29	22	3.03	3.79
1919	23	28	2.64	4.37
1920	51	39	3.59	4.33

	Deaths from Puerperal Fever.	Deaths from Other Puerperal Causes.	Rate per 1,000 Births (Total) B'ham.	Rate per 1,000 Births (Total) England and Wales.
1921	26	37	2.84	3.91
1922	25	35	3.02	3.81
1923	34	33	3.51	3.81
1924	37	35	3.91	3.90
1925	35	39	4.15	4.08
1926	41	33	4.13	4.12
1927	25	37	3.59	4.11
1928	32	34	3.83	4.42
1929	26	41	3.99	—

The causes of deaths as given on the death certificates may be classified as follows:—

Puerperal sepsis (after confinement or abortion)	26
Puerperal haemorrhage	12
Albuminuria and convulsions	9
Accidents of pregnancy (abortion, ectopic gestation, etc.)	3
Embolism	5
Other causes	12

The deaths during the past five years from puerperal sepsis and other accidents of childbirth have been divided into age-groups, and the rates per 1,000 births calculated from them. The figures are as follows:—

Deaths in Five Years 1925—29.

Age periods.	Puerperal Sepsis.	Other Accidents of Childbirth.	Total.
15—19 yrs.	7	2	9
20—24 ,, ...	21	16	37
25—34 ,, ...	87	90	177
35—44 ,, ...	42	69	111
45 and over	2	7	9

Expressed as rates per 1,000 of the estimated number of births the mortality is as follows:—

Annual Rate of Deaths per 1,000 Births.

Age periods.	Puerperal Sepsis.	Other Accidents of Childbirth.	Total.
15—19 yrs.	3.8	1.1	4.9
20—24 ,, ...	1.2	0.9	3.1
25—34 ,, ...	1.9	2.0	3.9
35—44 ,, ...	2.3	3.8	6.1
45 and over	3.5	12.3	15.8

MATERNAL MORTALITY ENQUIRY.

At the request of the Ministry of Health a medical enquiry has been made in the case of every maternal death in childbirth during the year. This enquiry was purely medical and scientific, and the reports have been forwarded to the Ministry. The information obtained in these cases relating mainly to social factors, has been tabulated below with brief comments. It will be seen that the figures differ from those obtained from death certificates. They are, however, more accurate.

Total Deaths of Women Associated with Pregnancy and Childbirth.

1.	Deaths from intercurrent disease.		30
2.	Deaths transferred to Birmingham, died outside City		2
3.	Deaths from Childbearing		63
	(a) Deaths from abortion	15	
	(b) Deaths from puerperal sepsis	19	
	(c) Deaths from toxaemia	15	
	(d) Deaths from haemorrhage	8	
	(e) Other deaths	6	
	Total ...	63	

GROUP I. DEATHS FROM INTERCURRENT DISEASE. Total 30.

Parity. Primiparae 11. Multiparae 19. *Illegitimate* 1.

Age Groups. Under 20=1. 20–30=9. 30–40=15. Over 40=5.

Cause of Death.

Pneumonia	12	(Influenza, 10).
Cardiac Conditions	11	
Pulmonary Tuberculosis	4	
Nephritis	1	
Acute Septicaemia (Non-pelvic in origin)	2	

Treated in Hospital, 15. Died in Hospital, 14.

Ante-natal Care. None, 9. Some, 15. Sufficient, 6.

Home Conditions. Well-to-do, 1. Very Poor, 16 (2 destitute). Good working class, 13

Period of Pregnancy. Full time=8. 36–40 weeks=2. 32–36 weeks=7. 28–32 weeks=4. 24–28 weeks=3. 20–24 weeks=4. below 20 weeks=2.

Death was apparently inevitable in 23 cases. In 7 cases more energetic measures *might* have saved the patient's life ; in three of these the patient completely disregarded medical advice.

A study of the cases suggests the need for more thorough and intensive ante-natal care with a careful investigation in every case, and the need for specialist advice, particularly in cardiac cases. The cardiac cases call for prolonged hospital treatment which the patients themselves find it difficult to accept.

The influenza epidemic played an important part in these deaths. The high proportion of primiparae is noticeable.

GROUP III. DEATHS FROM CHILD-BEARING.

(*a*) *Deaths from Abortions.* Total 15.

Parity. Primiparae, 1. Multiparae, 14. *Illegitimate,* 3.

Age Groups. Under 20=Nil. 20–30=7. 30–40=5. Over 40=3.

Cause of Death.

	Septicaemia	14	
	Haemorrhage	1	
Natural Abortion	4		
Interference	5		
Probably Interference	5	(Little reasonable doubt).	
Induction for haemorrhage	1		
Treated in Hospital	15		
Marked delay in treatment	7		

Home Conditions. Well-to-do, 1. Good, 2. Poor, 11.

Period of Pregnancy. Before 12th week=4. 12th to 16th week=5. 16th to 20th week=5. 20th to 24th week=1.

It is a striking fact that the majority of the deaths from abortion followed interference, and occurred in multiparae from poor homes. Such patients naturally delay in obtaining treatment. In one case, there was a toxaemia and pyelitis which probably caused the septicaemia.

(*b*), (*c*), (*d*). *Deaths from Puerperal Sepsis, Toxaemia, and Heamorrhage.* These are shown in the table opposite.

MATERNAL DEATHS.

	Puerperal Sepsis. (b)	Toxaemia		Haemorrhage. (d)	Total.
		Eclampsia with Convulsions. (c1)	No Convulsions. (c2)		
TOTAL	19	9	6	8	42
AGE GROUPS.					
under 20	—	1	—	—	1
20—30	8	2	1	3	14
30—40	11	6	4	3	24
Over 40	—	—	1	2	3
PARITY.					
Primipara	9	4	2	3	18
Multipara	9	5	4	5	23
Not known	1	—	—	—	1
HOME CONDITIONS.					
Well-to-do	3	1	2	1	7
Good	3	5	2	2	12
Poor	13	3	2	3	21
Destitute	—	—	—	2	2
Illegitimate	—	1	—	—	1
PERIOD IN PREGNANCY.					
Full term	17	1	2	4	24
Premature	2	7	3	2	14
Not known	—	1	1	2	4
ANTE-NATAL CARE.					
None	2	—	2	3	7
Some	6	7	4	3	20
Sufficient	11	2	—	2	15
ATTENDANCE AT DELIVERY					
Dr. and Handywoman	—	—	—	1	1
Midwife only	3	1	—	—	4
Midwife and Dr. called	7	—	—	1	8
Midwife and Dr. booked	2	2	2	1	7
Hospital	7	5	2	3	17
No attendance	—	—	—	1	1
Doctor	—	—	—	1	1
Undelivered	—	1	2	2	5
TREATED IN HOSPITAL	17	8	6	4	35

NOTES NOT INCLUDED IN ABOVE TABLE.

(*b*) *Puerperal Sepsis.* Total 19.

Method of Delivery :—

Normal=5. (Of these two were very dirty and undernourished, one undernourished, and one suffered from toxaemia).
Normal with injuries=5.
Normal with manual removal of placenta=2.
Forceps delivery with injuries=4.
Forceps delivery with manual removal of placenta=1.
Version and manual removal of placenta=1.
Induction=1.

Complications:—

Four cases were mild infections with a thrombophlebitis, and the patient died suddenly of pulmonary embolism. One case was complicated by a markedly adherent placenta and much haemorrhage. In one case there was retained placental tissue which only declared its presence six months after delivery.

Contributory Causes of Death:—

Defective nursing and sepsis	6
Delay in obtaining medical help	2
Poverty and poor resistance	4
Dirty surroundings	2
Late removal to hospital	9
Failure at ante-natal examination to diagnose difficulty	2
Pregnancy toxaemia predisposing to sepsis	1

(*c*) *Deaths from Toxaemias.*

(1) Cases with Convulsions. Total 9.

Method of delivery :—

Forceps=1.
Normal with post-partum haemorrhage=1.
Induction=1.
Normal with ante-partum haemorrhage=1
Normal=4.
Undelivered=1

Period of occurrence:—

Ante-partum=4.
Post-partum=5.

(2) Cases with no convulsions. Total, 6.

Method of delivery :—

Normal=2.
Forceps and injury=1.
Induction and forceps=1.
Undelivered=2

Period of occurrence:—

Ante-partum=3
Post-partum=3

Type of case:—

Mania=1
Uraemia=5

(*d*) *Deaths from Haemorrhage.* Total 8.

Method of Delivery :—

Normal=1.
Forceps=1.
Forceps and injury=1.
Version=1.
Hysterectomy=1.
Normal with adherent placenta=1.
Undelivered=2

Cause of Death.

Placenta praevia	2
Post-partum haemorrhage.	4
Ruptured uterine varix	1
Concealed accidental haemorrhage	1

(*e*) *Deaths from other Causes.* Total 6.

Ectopic Gestation=3. Death was due to ruptured ectopic gestations. Operation was performed in two cases. Two of the patients were primiparae, and one a multipara.
Ruptured Uterus. (Previous Caesarian Section)=1.
Cardiac Failure. (Following Caesarian Section)=1.
Pulmonary Embolus. (Following phlebitis, six months pregnant), died undelivered=1.

PUERPERAL SEPSIS.

During the year there were 94 cases of puerperal fever, and 118 of puerperal pyrexia. Of these 151 were treated in hospital, viz. :—

Women's Hospital	91
Selly Oak Hospital	21
Dudley Road Hospital	19
General Hospital	3
Queen's Hospital	1
Maternity Hospital	5
Other Hospitals and Nursing Homes	11

Associated conditions in 205 of the cases were as follow :—

Induction	2
Version	4
Injury and internal lacerations	23
Torn perineums	59
Manual removal of placenta	20
Retained products	23
Mastitis	9
Pyelitis	3
Contact with infection	19
Intercurrent illness	18
No definite abnormality	25

The number of cases in primipara was 90, and in multipara 105. The parity was not known in 10 cases.

The attendant at the delivery was as follows (excluding abortions) :—

Midwife	74
Dr. and Midwife	61
Dr. and Handywoman	13
Selly Oak Hospital	10
Dudley Road Hospital	3
Maternity Hospital	12
Queen's Hospital	1
B. B. A.	2
	176

The Attendant booked was :—

Midwife	87	(1 with student)
Dr. and Midwife	47	
Dr. and Handywoman	14	(2 with students)
Maternity Hospital	11	
Dudley Road Hospital	3	
Selly Oak Hospital	3	
Nursing Homes	12	
No information	28	
	205	

The character of the labour was normal in 125 cases, and instrumental (forceps deliveries) in 51. In 20 cases there was manual removal of the placenta. There were four cases of version and two of induction. There were six premature births, 29 abortions and 170 labours at term. Thirteen of the cases were illegitimate births. Of the 205 cases, 27 died, nine of these deaths following abortion. It will be seen that these figures do not correspond to those given in the maternal mortality enquiry, which gives more accurate data.

In order to see if the age of the mother appears to have any influence on the liability to puerperal fever and pyrexia the cases for the last three years have been classified in age periods and the percentage they form of the live births has been calculated as follows :—

PUERPERAL FEVER AND PYREXIA.

Age period.	Number of cases. 1927—29.	Rate per 1,000 births.
15—19 yrs.	23	20.7
20—24 ,, ...	128	12.3
25—34 ,, ...	357	12.9
35—44 ,, ...	130	11.9
45 and over	5	14.9

OPHTHALMIA NEONATORUM.

The following is a summary of the arrangements in force in regard to the treatment of ophthalmia neonatorum :—

1. *Receipt of Information.* Information is received both through midwives, who notify cases of purulent eye discharge, and medical practitioners who notify cases of ophthalmia neonatorum.

522 cases were notified in 1929.

On receipt of information, the Inspector of Midwives for the district visits at once, and ascertains whether the patient is under treatment at home by the medical attendant. If not, the mother is advised to take the child to the Eye Hospital.

2. *Treatment.* The following indicates the plan of treatment for the cases notified during 1929 :—

Treated at home	29
Eye Hospital—out-patient	434
Eye Hospital—in-patient	37
Maternity Hospital	8
Selly Oak Hospital	6
Children's Hospital	3
Other Hospitals, etc.	5
	522

Patients attending the Eye Hospital are seen in the Out-Patients' Department by a surgical officer and receive treatment. The serious cases are admitted to beds reserved for this purpose at the Hospital; the slighter cases are given appointments for further attendance at the Out-Patient Department, a demonstration of the method of irrigation of the eye is given, and lotion with directions as to use, supplied.

3. *Results.* Out of the 522 cases of ophthalmia neonatorum notified in 1929, 5 died during the year from other conditions and 6 had bad results as regards defective vision. The remaining 511 made complete recovery. Of the 6 with defective vision, in one both eyes were totally blind, in one the left eye was very defective and the right eye was blind, in one both eyes were slightly defective, and in the remaining three one eye was slightly defective.

In 1928, 530 notifications were received, and of these 18 infants were left with damaged eyes. The record for 1929 is therefore far better than that for 1928, and is at the general level of results for recent years.

While the Committee were satisfied as to the efficiency of treatment at the Eye Hospital, and as to the selection of cases needing in-patient treatment, further consideration was felt to be needed of the home supervision of patients continuing to attend as out-patients. The Board of the Eye Hospital have arranged to set aside two specially experienced nurses wholly for the purpose of home visiting of cases under out-patient treatment, the Hospital making all arrangements for the transport of these nurses. This arrangement is eminently satisfactory, and the Public Health Committee is contributing towards the cost.

The number of cases and the result of treatment since 1917 are indicated below :—

Year.	No. of cases reported.	No. of babies blind in : One eye.	Both eyes	No. of babies with eyes otherwise impaired.
1917	237	3	0	6
1918	228	3	0	6
1919	282	4	0	5
1920	444	?	?	6
1921	427	1	0	0
1922	484	1	0	1
1923	433	0	0	10
1924	413	1	1	1
1925	335	0	2	3
1926	395	1	0	2
1927	409	2	0	0
1928	530	6	4	8
1929	522	1	1	4

Table I. Vital Statistics during 1929 and Previous Years.

Year.	Population Estimated to middle of each year.	Birth-rate	Death-rate	Infant Mortality rate per 1,000 Births	Death-rates per 1,000 of Population from:—																	Death-rates per 1,000 Births				
					Enteric Fever	Smallpox	Measles	Scarlet Fever	Whooping Cough	Diphtheria	Influenza	Tuberculosis		Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System.	Diseases of Genito-Urinary System	Suicides	Other Violence	Congenital Malformation	Congenital Debility, Premature Birth, etc.	Diarrhoea and Enteritis (under 2)	Puerperal Fever.	Other Accidents of Child Birth.
												Respiratory	Other Forms													
1901	760,989	31.4	17.5	176	.18	—	.49	.23	.39	.16	.16	1.47	.52	.73	?	?	3.50	?	?	.11	.42	?	?	?	1.47	2.52
1902	768,757	31.2	16.3	144	.17	.01	.31	.43	.47	.24	.12	1.38	.37	.68	?	?	3.24	?	?	.08	.43	?	?	?	1.24	2.19
1903	776,604	30.9	15.8	147	.10	.02	.32	.25	.16	.23	.10	1.28	.48	.76	?	?	2.93	?	?	.11	.45	?	?	?	1.17	2.63
1904	784,532	31.0	17.7	179	.08	—	.31	.11	.75	.21	.13	1.30	.35	.74	?	?	3.36	?	?	.09	.49	?	?	?	1.40	1.98
1905	792,540	29.0	15.1	141	.06	.00	.38	.08	.26	.17	.14	1.26	.41	.81	?	?	2.92	?	?	.10	.44	?	?	?	1.31	2.22
	Average	**30.7**	**16.5**	**157**	**.12**	**.01**	**.36**	**.22**	**.41**	**.20**	**.13**	**1.34**	**.45**	**.74**	?	?	**3.19**	?	?	**.10**	**.45**	?	?	?	**1.32**	**2.31**
1906	800,631	29.4	15.9	157	.07	—	.34	.09	.44	.17	.15	1.14	.37	.83	?	?	2.80	?	?	.10	.44	?	?	?	1.11	2.98
1907	808,803	28.8	15.3	133	.09	—	.51	.15	.30	.20	.16	1.11	.43	.80	?	?	3.07	?	?	.09	.47	?	?	?	1.51	1.85
1908	817,060	29.1	15.3	130	.07	—	.08	.15	.49	.20	.31	1.24	.35	.85	?	?	2.82	?	?	.10	.44	?	?	?	.50	2.29
1909	825,400	27.4	15.1	121	.04	—	.82	.18	.23	.20	.18	1.22	.30	.82	?	?	2.95	?	?	.10	.41	?	?	?	1.02	1.55
1910	833,826	26.8	13.2	115	.04	—	.05	.14	.34	.13	.11	1.08	.32	.89	?	?	2.48	?	?	.11	.45	?	?	?	1.48	2.11
	Average	**28.3**	**15.0**	**131**	**.06**	—	**.36**	**.14**	**.36**	**.18**	**.18**	**1.16**	**.35**	**.84**	?	?	**2.82**	?	?	**.10**	**.44**	?	?	?	**1.12**	**2.16**
1911	842,337	26.1	15.0	150	.04	.00	.47	.10	.17	.13	.09	1.14	.32	.89	?	?	2.51	?	?	.12	.41	?	?	?	1.64	2.18
1912	850,947	26.1	14.1	111	.04	—	.67	.18	.39	.12	.12	1.28	.24	.93	1.36	1.33	2.68	.95	.50	.07	.45	3.9	46.1	10.8	1.22	2.03
1913	859,644	27.3	14.9	129	.02	—	.46	.20	.19	.19	.13	1.19	.34	1.02	1.37	1.53	2.48	1.68	.56	.11	.45	4.8	43.8	35.5	1.85	2.01
1914	882,534	26.4	14.8	122	.02	—	.35	.17	.35	.30	.16	1.20	.27	.88	1.35	1.74	2.69	1.49	.51	.09	.43	4.5	43.2	27.6	1.42	1.77
1915	891,234	23.8	14.4	118	.01	—	.47	.07	.14	.15	.16	1.28	.27	1.00	1.36	1.82	2.82	1.31	.48	.05	.45	4.9	38.9	27.3	1.65	1.79
	Average	**25.9**	**14.6**	**126**	**.03**	**.00**	**.48**	**.14**	**.25**	**.18**	**.13**	**1.22**	**.29**	**.94**	**1.36**	**1.60**	**2.64**	**1.36**	**.51**	**.09**	**.44**	**4.5**	**43.0**	**25.3**	**1.56**	**1.96**
1916	895,678	23.1	13.5	104	.01	—	.11	.03	.42	.13	.16	1.24	.24	1.00	1.29	1.88	2.60	1.07	.45	.05	.40	4.4	35.7	18.4	1.50	1.94
1917	900,000	19.7	12.6	101	.01	—	.37	.01	.14	.13	.11	1.30	.26	1.02	1.23	1.87	2.10	.88	.44	.06	.38	4.7	39.5	15.0	1.47	1.13
1918	870,000	19.4	15.2	99	.01	—	.08	.01	.32	.18	2.50	1.35	.25	1.02	1.18	1.76	2.85	.96	.40	.07	.35	4.0	35.5	18.5	1.72	1.31
1919	910,000	20.9	13.0	84	.01	—	.20	.05	.06	.14	1.15	1.10	.18	1.01	1.07	1.73	2.67	.66	.35	.11	.34	4.3	36.2	9.9	1.19	1.45
1920	910,000	27.6	12.6	83	—	—	.16	.12	.20	.22	.46	.93	.17	1.12	1.06	1.72	2.46	.82	.32	.11	.34	4.2	31.4	9.5	2.03	1.56
	Average	**22.1**	**13.4**	**94**	**.01**	—	**.18**	**.04**	**.23**	**.16**	**.88**	**1.18**	**.22**	**1.03**	**1.17**	**1.79**	**2.54**	**.88**	**.39**	**.08**	**.36**	**4.3**	**35.7**	**14.3**	**1.58**	**1.48**
1921	919,683	24.1	11.3	83	.01	—	.17	.04	.10	.13	.15	.97	.16	1.12	.98	1.64	2.02	.93	.38	.10	.26	4.2	32.8	16.6	1.17	1.67
1922	927,844	21.5	12.1	86	.00	—	.09	.04	.38	.10	.48	.97	.16	1.18	1.04	1.85	2.38	.66	.37	.12	.26	4.8	32.9	8.5	1.26	1.76
1923	936,079	20.4	11.0	72	.00	—	.20	.04	.05	.15	.28	.92	.16	1.17	1.00	1.71	1.98	.70	.39	.14	.35	4.5	27.3	10.9	1.78	1.73
1924	944,386	19.2	11.6	83	.01	—	.08	.02	.19	.10	.39	.97	.13	1.30	1.00	1.91	2.15	.70	.37	.10	.31	5.4	32.7	9.2	2.01	1.90
1925	952,766	18.8	11.7	78	.00	—	.11	.02	.23	.10	.39	.98	.16	1.27	.98	2.12	1.97	.73	.37	.11	.33	4.6	29.7	11.3	1.96	2.19
	Average	**20.8**	**11.5**	**80**	**.00**	**.00**	**.13**	**.03**	**.19**	**.12**	**.34**	**.96**	**.15**	**1.21**	**1.00**	**1.85**	**2.10**	**.74**	**.38**	**.11**	**.30**	**4.7**	**31.1**	**11.3**	**1.64**	**1.85**
1926	961,222	18.7	11.3	73	.00	—	.08	.01	.13	.12	.27	.94	.12	1.26	1.07	2.12	1.88	.73	.40	.12	.32	5.3	27.8	11.2	2.29	1.84
1927	969,752	17.8	11.6	75	.00	—	.13	.01	.07	.06	.41	.89	.17	1.36	0.95	2.28	1.89	.70	.41	.15	.36	5.1	30.9	11.5	1.45	2.14
1928	976,500	17.6	10.9	65	.00	.00	.04	.01	.17	.07	.13	.86	.13	1.35	0.94	2.41	1.56	.67	.48	.16	.40	6.0	26.5	9.3	1.86	1.97
1929	981,000	17.1	13.5	79	.00	—	.20	.01	.13	.09	1.09	.94	.15	1.34	0.98	2.76	2.26	.76	.53	.16	.42	5.8	30.6	13.9	1.55	2.44

TABLE II.

CAUSES OF DEATH AT DIFFERENT AGE PERIODS IN 1929.

No.	Causes of Death.	Sex	Ages at Death.									All Ages.
			0–	1–	2–	5–	15–	25–	45–	65–	75–	
1.	Enteric Fever	M.	—	—	—	—	—	—	2	—	—	2
		F.	—	—	—	—	—	2	—	—	—	2
2.	Smallpox	M.	—	—	—	—	—	—	—	—	—	—
		F.	—	—	—	—	—	—	—	—	—	—
3.	Measles	M.	19	54	24	10	—	—	—	—	—	107
		F.	19	38	25	6	—	1	—	—	—	89
4.	Scarlet Fever	M.	—	—	1	3	1	—	—	—	—	5
		F.	—	—	3	—	—	—	1	—	—	4
5.	Whooping Cough	M.	21	23	7	4	—	—	—	—	—	55
		F.	25	23	16	3	—	—	—	—	1	68
6.	Diphtheria	M.	—	1	16	16	2	—	1	—	1	37
		F.	3	1	15	25	3	1	1	—	—	49
7.	Influenza	M.	13	7	4	7	12	78	196	113	84	514
		F.	6	10	11	7	14	64	146	164	130	552
8.	Encephalitis Lethargica	M.	—	1	1	2	2	2	4	—	—	12
		F.	—	—	1	—	—	6	5	—	—	12
9.	Meningococcal Meningitis	M.	6	2	2	1	1	—	1	—	—	13
		F.	2	1	—	1	—	—	—	—	—	4
10.	Tuberculosis of Respir. System	M.	3	2	—	10	69	215	229	19	1	548
		F.	2	4	2	8	103	149	88	9	2	370
11a.	Nervous System	M.	7	6	9	4	4	—	3	—	—	33
		F.	5	6	11	3	2	—	—	—	—	27
11b.	Intestines and Peritoneum	M.	1	5	3	2	5	1	1	—	—	18
		F.	2	1	—	4	—	2	1	—	—	10
11c.	Other Forms	M.	3	2	3	2	6	5	10	2	2	35
		F.	3	1	4	2	4	7	3	—	1	25
12a.	Cancer of Buccal Cavity	M.	—	—	—	—	—	—	29	23	2	54
		F.	—	—	—	—	1	1	4	4	—	10
12b.	Phar. Æsop., Stomach, Liver	M.	—	—	—	1	1	17	123	68	29	239
		F.	—	—	—	—	1	15	72	55	33	176
12c.	Peritoneum and Intestines	M.	—	—	—	—	2	10	78	50	14	154
		F.	—	—	—	1	—	5	54	33	32	125
12d.	Female Organs	M.	—	—	—	—	—	—	—	—	—	—
		F.	—	—	—	—	—	29	90	25	11	155
12e.	Breast	M.	—	—	—	—	—	—	1	—	—	1
		F.	—	—	—	—	—	13	56	27	22	118
12f.	Skin	M.	—	—	—	—	—	—	2	2	6	10
		F.	—	—	—	—	—	—	1	1	2	4
12g.	Other Organs	M.	—	—	—	—	4	16	78	50	25	173
		F.	—	—	1	1	3	11	44	22	13	95
13.	Rheumatic Fever	M.	—	—	—	8	9	8	5	—	1	31
		F.	—	—	—	10	7	4	12	1	2	36
14.	Diabetes	M.	—	1	—	2	1	7	19	24	4	58
		F.	—	—	—	3	2	4	31	26	14	80
15a.	Cerebral Haemorrhage, etc.	M.	—	—	—	—	2	5	93	99	58	257
		F.	—	1	—	—	—	8	107	107	112	336
15b.	Other Diseases of Nervous System	M.	1	10	9	22	16	31	45	30	11	203
		F.	29	7	8	12	5	22	49	25	19	164
16.	Heart Diseases	M.	17	1	4	7	27	55	304	268	283	949
		F.	—	1	—	15	15	65	293	339	416	1145
17a.	Arterio Sclerosis	M.	1	—	—	—	—	6	70	114	100	290
		F.	—	—	—	—	—	2	49	64	103	218

TABLE II.—*continued.*

CAUSES OF DEATH AT DIFFERENT AGE PERIODS IN 1929.

No.	Causes of Death.	Sex.	AGES AT DEATH.									All Ages
			0–	1–	2–	5–	15–	25–	45–	65–	75–	
17b.	Other Diseases of Circulatory System	M.	—	—	—	1	—	10	37	14	5	67
		F.	—	—	—	2	1	6	17	9	3	38
18.	Bronchitis	M.	—	5	2	2	—	7	88	83	103	314
		F.	24	5	2	1	2	5	70	110	194	410
19.	Pneumonia (all forms)	M.	21	97	43	13	26	112	233	101	44	791
		F.	122	81	45	13	18	59	92	91	66	561
20.	Other Respiratory Diseases	M.	96	2	1	3	3	13	30	11	11	75
		F.	1	3	—	1	1	8	20	17	16	67
21.	Ulcer of Stomach or Duodenum	M.	1	—	1	—	2	19	52	13	1	88
		F.	—	—	—	—	1	6	19	3	4	33
22.	Diarrhoea, etc.	M.	—	17	3	1	1	—	5	3	2	153
		F.	121	14	5	4	5	1	3	4	5	123
23.	Appendicitis and Typhlitis	M.	82	—	3	5	6	9	9	—	—	32
		F.	—	—	2	5	5	6	9	2	2	31
24a.	Cirrhosis of Liver	M.	—	—	—	1	—	4	18	6	1	30
		F.	—	—	—	—	—	—	13	3	—	16
24b.	Other Diseases of Digestive System	M.	11	2	6	4	2	17	29	14	13	98
		F.	2	6	2	9	—	20	53	27	24	143
25a.	Acute and Chronic Nephritis	M.	2	—	—	1	7	22	59	53	41	185
		F.	1	—	—	5	7	18	64	46	17	158
25b.	Other Dis. of Genito-Urinary System	M.	1	—	—	—	3	3	20	35	32	94
		F.	2	1	1	1	3	17	16	17	27	85
26.	Puerperal Sepsis	M.	—	—	—	—	—	—	—	—	—	—
		F.	—	—	—	—	4	22	—	—	—	26
27.	Other Accidents and Dis. of Pregnancy and Parturition	M.	—	—	—	—	—	—	—	—	—	—
		F.	—	—	—	1	4	33	3	—	—	41
28a.	Congenital Debility Malformation and Premature Birth	M.	328	4	1	3	—	1	3	—	—	340
		F.	227	3	—	1	—	2	—	—	—	233
28b.	Other Diseases of Early Infancy	M.	28	—	—	—	—	—	—	—	—	28
		F.	11	—	—	—	—	—	—	—	—	11
29.	Suicide	M.	—	—	—	—	4	27	61	8	4	104
		F.	—	—	—	—	3	12	29	8	—	52
30.	Other Deaths from Violence	M.	10	11	7	34	37	50	60	27	18	254
		F.	9	6	10	24	14	17	27	14	34	155
31.	Other Definite Dis.	M.	20	4	8	13	9	36	85	44	99	318
		F.	16	5	3	9	10	32	69	68	190	402
32.	Causes Ill-defined or Unknown	M.	—	—	—	—	—	—	—	1	1	2
		F.	—	—	—	—	—	—	2	—	—	2
	All Causes	M.	770	257	158	182	264	786	2083	1275	996	6771
		F.	554	218	167	177	241	675	1613	1321	1495	6461
SUB ENTRIES IN ABOVE FIGURES												
31a.	Erysipelas	M.	—	1	—	1	—	3	5	—	3	13
		F.	1	—	—	—	—	3	3	1	1	9
31b.	Poliomyelitis	M.	—	—	—	—	—	—	—	—	—	—
		F.	—	—	—	—	—	—	—	—	—	—
31c.	Polioencephalitis	M.	—	—	—	1	—	—	—	—	—	1
		F.	—	—	—	—	—	—	1	—	—	1
31d.	Venereal Diseases	M.	6	—	—	—	—	12	20	2	1	41
		F.	2	—	—	—	—	5	4	1	—	12
31e.	Old Age	M.	—	—	—	—	—	—	—	16	74	90
		F.	—	—	—	—	—	—	—	30	149	179

TABLE III. *Births and Deaths Registered in, or belonging to, each Ward during the Year ending December 31st, 1929.*

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	Perry Barr	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	—	—	—	—	—	—	—	4
Small Pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Measles	10	8	12	4	23	4	11	4	—	—	1	4	5	6	1	2	—	6	30	24	4	7	7	—	3	4	2	2	2	6	2	2	196
Scarlet Fever	—	1	—	1	1	—	—	—	—	—	—	1	—	—	1	—	—	1	—	—	—	1	1	—	—	—	—	—	—	—	1	—	9
Whooping Cough	4	5	8	4	14	2	2	1	2	1	1	4	5	—	1	—	—	15	4	12	4	6	1	1	5	1	4	1	5	5	3	2	123
Diphtheria...	3	4	3	7	3	1	8	1	1	—	—	—	3	2	—	—	—	—	1	2	7	13	5	1	3	1	3	5	2	1	6	—	86
Influenza	51	42	48	57	34	59	16	23	44	15	23	28	48	22	35	6	3	43	56	56	30	21	33	20	38	26	30	48	37	25	28	21	1066
Encephalitis Lethargica ...	—	1	2	—	—	1	1	—	2	—	—	2	—	1	—	—	—	1	—	2	—	1	—	1	—	1	2	1	—	4	1	—	24
Meningoccal Meningitis ...	—	—	1	—	4	—	—	—	1	—	—	2	—	1	1	—	—	1	1	2	—	1	—	—	1	—	—	1	—	—	—	—	17
Tuberculosis of																																	
Resp. System ...	27	49	32	43	48	22	23	12	19	16	13	36	27	26	22	9	1	44	49	66	54	58	38	11	16	26	24	32	24	26	20	5	918
Nervous System ...	—	2	2	1	3	1	6	2	1	1	1	2	4	—	1	—	—	2	1	7	4	6	—	3	1	1	2	1	—	4	1	—	60
Intest. & Peritonem ...	1	1	1	—	2	—	—	—	2	—	—	—	1	—	2	—	—	2	1	2	4	3	1	1	1	—	1	1	1	—	—	—	28
Other Forms ...	5	4	3	2	3	4	—	—	2	1	2	1	—	1	2	—	1	—	2	5	6	4	2	1	2	1	—	—	1	3	2	—	60
Cancer of Buccal Cavity...	1	5	6	1	5	2	—	1	—	1	3	1	2	—	1	1	—	4	2	6	5	6	—	—	—	4	2	1	2	2	—	—	64
Phar. Æsop. Stom. and Liver	18	18	22	16	10	12	15	10	14	11	9	12	15	7	12	3	—	20	24	19	12	14	10	4	14	14	15	14	15	24	9	3	415
Peritoneum & Intest....	15	14	13	11	9	10	4	6	15	5	5	4	9	6	17	1	2	20	3	9	8	13	9	9	9	5	9	9	16	7	6	1	279
Female Organs ...	6	11	3	10	7	7	3	5	5	3	1	6	2	9	7	2	—	5	8	4	5	6	—	6	2	2	5	8	4	7	6	—	155
Breast ...	4	4	8	10	3	8	5	5	5	3	3	2	—	2	7	1	—	3	4	4	3	2	2	4	5	2	3	4	6	2	3	2	119
Skin ...	—	1	1	—	1	—	—	—	—	1	—	—	2	—	—	—	—	2	—	—	1	—	—	—	1	—	3	1	—	—	—	—	14
Other Organs ...	7	14	12	11	10	11	6	9	10	6	10	6	13	5	15	1	—	14	7	9	6	8	9	4	8	7	13	12	9	14	1	1	268
Rheumatic Fever ...	2	2	—	2	7	2	—	3	—	1	2	1	2	—	3	—	—	1	5	5	1	1	3	4	—	4	2	6	1	3	3	1	67
Diabetes	4	7	4	12	5	9	6	1	7	2	3	8	9	3	5	—	—	4	5	—	1	2	7	3	6	5	2	5	7	4	1	1	138
Cereb'l Haemorr., Etc. ...	17	21	31	23	32	20	22	8	14	9	8	21	31	10	23	2	1	28	15	26	30	19	31	12	12	19	15	32	18	28	12	3	593
Other Dis. of Nerv. Sys. ...	19	16	15	6	16	15	15	6	14	8	8	17	12	4	10	3	2	18	19	20	13	14	12	2	7	13	12	12	15	15	5	4	367
Heart Diseases	74	102	104	99	98	89	60	37	69	34	32	49	73	45	75	24	1	83	96	157	78	70	53	44	43	57	74	84	71	67	36	16	2094
Arterio-Sclerosis	22	23	28	32	31	16	9	18	22	13	14	11	17	5	25	7	—	17	17	20	10	10	8	19	17	14	16	20	20	12	8	7	508
Other Dis. Circ. Syst. ...	6	4	10	9	3	4	1	1	4	1	1	4	7	2	4	4	—	1	3	—	4	3	5	3	2	2	3	4	2	3	4	1	105
Bronchitis	12	26	42	36	42	17	17	8	19	10	14	28	39	22	22	4	—	38	32	43	30	27	19	10	26	23	21	27	23	26	13	8	724
Pneumonia (all forms) ...	43	60	73	44	118	36	35	20	26	8	14	58	55	33	33	11	1	68	66	82	93	64	35	23	19	31	35	41	39	54	27	6	1352
Other Respiratory Dis. ...	6	7	3	6	7	5	4	4	7	4	5	2	2	3	1	2	1	7	9	6	5	1	11	4	5	8	4	3	4	4	2	—	142
Ulcer of Stom. or Duod. ...	5	9	3	1	1	5	2	4	1	1	5	4	3	4	2	1	—	6	5	7	4	5	5	2	2	6	5	5	5	9	2	2	121
Diarrhœa, etc. ...	10	11	9	4	20	5	10	4	1	2	3	10	1	6	10	4	—	9	22	36	18	33	10	—	4	4	3	5	8	6	7	1	276
Appendicitis, Typhlitis ...	3	1	1	2	2	7	5	2	4	—	2	3	—	—	1	—	—	2	1	3	3	3	3	—	3	—	1	2	3	3	3	—	63

TABLE III. (*Continued.*)

Causes of Death.	Acock's Green.	All Saints'	Aston.	Balsall Heath.	Duddeston and Mechells	Edgbaston	Erdington (North)	Erdington (South)	Handsworth	Harborne	King's Norton	Ladywood	Lozells	Market Hall	Moseley and King's Heath	Northfield	Perry Barr	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
Cirrhosis of Liver ...	3	3	3	1	1	—	1	3	1	1	—	3	3	—	2	—	—	2	1	2	2	—	—	1	3	2	1	2	2	2	—	1	46
Other Dis. of Diges. Sys....	7	9	10	9	5	16	4	6	2	3	8	11	10	2	8	1	—	8	16	13	14	6	6	3	11	11	8	6	8	14	6	—	241
Acute & Chronic Nephritis	9	17	6	18	16	12	8	—	12	6	6	11	6	7	11	2	—	23	15	23	15	17	11	9	4	8	9	10	19	13	14	6	343
Other Dis. Gen.-Urin. Sys.	3	9	7	12	4	5	4	1	5	4	5	6	9	1	8	4	—	17	6	10	8	8	7	3	5	1	7	7	5	4	3	1	179
Puerperal Sepsis	2	—	1	1	2	1	—	—	1	—	—	—	1	—	—	—	—	—	2	—	2	—	2	—	1	1	—	3	3	1	2	—	26
Other Acc. of Child Birth	2	—	—	3	2	—	2	1	1	—	1	2	1	3	1	—	—	1	2	6	2	—	—	—	1	—	3	1	1	1	4	—	41
Congenital Debility and Malformation, Premature Birth	39	25	21	9	32	19	18	11	8	8	9	23	22	8	11	4	—	21	35	25	35	18	27	7	14	15	16	12	29	33	16	3	573
Other Dis. Early Infancy	2	2	—	—	4	1	1	2	1	—	—	1	1	2	—	1	—	—	4	1	2	3	—	—	2	—	—	1	2	2	2	2	39
Suicides	4	5	7	6	6	11	5	5	3	2	2	4	10	8	8	2	—	4	3	6	7	7	5	3	2	4	4	8	5	7	3	—	156
Other deaths from Violence	16	24	14	10	32	9	13	12	9	14	12	11	12	8	17	8	5	13	13	22	21	14	13	7	11	14	5	13	11	12	12	2	409
Other Definite Diseases ...	24	20	24	26	46	32	24	9	24	13	17	29	33	10	27	9	1	41	24	30	13	22	24	13	15	30	28	28	24	26	17	17	720
*Ill-Def. Causes	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—			1			4
All Causes	487	587	594	549	712	481	366	245	378	208	243	428	495	274	433	119	19	595	609	773	564	517	416	238	326	367	392	478	449	480	291	119	13232
Sub Entries in above figures*																																	
Erysipelas	—	—	1	1	1	—	—	—	1	1	—	1	2	—	2	1	—	2	—	4	—	—	3	—	—	—	—	1	—	1	—	—	22
Poliomyelitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polioencephalitis ...	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2
Venereal Diseases ...	2	4	1	1	5	2	4	2	—	—	—	4	4	—	2	—	—	5	5	1	2	2	1	—	1	2	1	—	—	—	—	2	53
Old Age	13	6	8	12	18	16	5	3	8	7	7	12	8	6	8	4	—	15	5	8	1	3	7	8	7	14	13	10	9	12	5	11	269
Deaths under 1 year ...	70	50	59	26	108	32	38	20	15	13	18	60	39	23	18	11	—	51	80	100	88	85	48	10	30	26	28	22	50	60	35	11	1324
Births	1024	690	686	514	863	380	681	404	348	223	333	553	485	314	471	184	47	623	820	923	796	708	699	219	394	518	306	492	678	652	541	234	16803

TABLE IV. DEATH-RATES FROM ALL CAUSES IN WARDS.

YEAR.	St. Paul's	St. Mary's	Duddeston and Nechells	St. Bartholomew's	St. Martin's	Market Hall	Ladywood	Central Wards	Lozells	Aston	Washwood Heath	Saltley	Small Heath	Sparkbrook	Balsall Heath	Edgbaston	Rotton Park	All Saints'	Middle Ring	Soho	Sandwell	Handsworth	Perry Barr	Erdington North	Erdington South	Yardley	Acock's Green	Sparkhill	Moseley and King's Heath	Selly Oak	King's Norton	Northfield	Harborne	Outer Ring
1912	19.6	26.0	22.0	20.2	18.2	16.6	17.1	20.0	13.7	14.4	13.4	11.3	10.5	11.9	12.3	10.8	13.4	14.9	12.7	11.0	8.3	10.4	?	9.8	9.8	11.4	11.0	9.5	9.9	11.0	10.5	8.8	10.2	10.1
1913	20.1	24.6	21.4	24.0	22.0	19.1	17.1	21.2	13.2	16.5	13.6	13.3	13.1	13.2	12.7	12.0	17.1	15.3	14.0	13.9	9.6	9.5	?	9.4	9.4	9.8	12.5	9.7	9.0	12.2	8.6	8.9	9.9	10.2
1914	21.4	24.9	21.2	20.2	21.2	20.1	19.6	21.2	14.3	16.6	12.9	11.7	11.2	13.4	12.6	12.3	15.8	15.1	13.6	12.5	10.6	11.2	?	11.7	9.7	11.1	11.8	8.8	9.7	11.3	9.8	10.0	10.3	10.7
Average	**20.9**	**25.0**	**20.8**	**21.5**	**20.5**	**18.1**	**17.7**	**20.6**	**13.7**	**15.6**	**13.0**	**12.1**	**11.5**	**12.9**	**12.7**	**11.8**	**15.2**	**14.9**	**13.4**	**12.7**	**10.0**	**10.5**	?	**10.6**	**9.7**	**10.4**	**11.5**	**9.5**	**9.6**	**11.7**	**9.9**	**10.1**	**10.5**	**10.5**
1916	18.7	22.4	19.7	17.0	21.2	16.5	14.9	18.6	12.4	13.7	11.8	12.2	11.5	12.4	12.5	12.1	13.7	13.3	12.6	12.2	9.9	9.8	?	12.7	7.9	10.8	11.0	9.7	9.8	10.5	9.1	10.6	9.9	10.3
1917	18.2	19.7	17.2	16.8	17.2	15.0	14.4	16.9	12.9	12.6	10.2	11.0	11.3	11.8	12.2	11.5	12.7	12.7	11.9	10.6	9.5	10.3	?	9.1	8.8	9.3	10.9	9.1	10.6	8.6	8.0	7.5	10.1	9.4
1918	20.0	22.7	19.7	20.8	20.3	20.9	19.4	20.5	15.5	16.3	12.0	13.4	14.8	14.5	15.6	13.7	15.8	15.7	14.7	13.3	11.1	11.7	?	9.8	11.7	10.8	12.3	11.9	11.2	11.8	9.3	11.5	12.5	11.5
1919	16.8	17.9	15.8	16.5	18.6	14.0	16.1	16.5	13.1	13.4	11.8	10.7	11.1	13.1	13.3	12.8	13.2	12.5	12.5	11.1	10.6	11.4	?	11.1	10.7	10.3	9.5	10.0	11.6	11.1	9.3	8.0	11.3	10.5
1920	16.9	20.4	16.3	16.6	17.6	12.8	17.5	16.9	11.8	11.9	11.4	11.1	11.0	12.0	12.8	11.1	13.7	12.7	12.0	11.6	9.4	9.5	?	9.5	9.3	10.4	10.4	10.0	10.0	10.0	9.0	8.2	10.2	9.8
Average	**18.1**	**20.6**	**17.7**	**17.5**	**19.0**	**15.8**	**16.5**	**17.9**	**13.1**	**13.6**	**11.4**	**11.7**	**11.9**	**12.8**	**13.3**	**12.2**	**13.8**	**13.4**	**12.7**	**11.8**	**10.1**	**10.5**	?	**10.4**	**9.7**	**10.3**	**10.8**	**10.1**	**10.6**	**10.4**	**8.9**	**9.2**	**10.8**	**10.3**
1921	14.7	17.4	13.7	14.2	13.6	14.6	12.6	14.4	11.7	12.1	10.9	9.2	10.5	10.2	11.4	10.7	11.2	11.3	10.9	10.1	11.3	10.1	?	9.3	10.2	8.0	8.3	9.1	10.5	7.6	7.8	8.7	8.2	9.2
1922	15.1	15.5	13.2	15.9	16.7	15.1	14.8	15.2	12.3	12.6	10.4	10.1	10.9	12.2	12.8	11.8	11.8	11.8	11.7	12.2	9.1	9.6	?	10.7	10.1	9.2	9.6	10.6	12.3	10.4	7.8	9.5	10.1	10.1
1923	13.7	17.1	13.7	13.5	14.0	12.1	12.5	13.8	11.8	11.6	10.1	8.4	9.7	10.4	10.9	10.6	10.7	11.4	10.6	10.3	8.9	9.8	?	8.9	8.1	8.3	8.7	9.4	11.0	8.8	8.1	7.9	9.8	9.1
1924	14.1	15.5	13.4	14.9	15.4	14.9	13.1	14.5	12.3	12.2	8.9	10.1	10.8	10.8	13.0	10.8	11.4	11.8	11.2	11.8	8.9	9.8	?	10.6	8.9	9.5	10.0	10.0	10.1	9.0	10.0	8.9	10.4	9.8
1925	14.9	17.7	13.2	14.5	15.4	13.4	12.6	14.5	12.8	14.1	9.7	9.2	9.7	11.8	11.9	11.3	12.5	12.8	11.6	12.0	8.1	9.3	?	9.3	8.1	9.6	8.8	9.8	10.4	8.6	8.3	9.3	9.5	9.3
Average	**14.5**	**16.6**	**13.4**	**14.6**	**15.0**	**14.0**	**13.1**	**14.5**	**12.2**	**12.5**	**10.0**	**9.4**	**10.3**	**11.1**	**12.0**	**11.0**	**11.5**	**11.8**	**11.2**	**11.3**	**9.3**	**9.7**	?	**9.8**	**9.1**	**8.9**	**9.1**	**9.8**	**10.9**	**8.9**	**8.4**	**8.9**	**9.6**	**9.5**
1926	14.6	16.9	12.8	14.0	14.6	13.2	12.3	14.1	12.7	12.3	9.3	7.3	9.0	10.9	12.0	11.9	11.3	12.1	10.9	10.9	9.8	9.6	?	8.1	9.3	7.3	8.6	9.2	9.8	8.2	8.6	10.0	10.3	9.2
1927	16.2	16.6	13.1	13.4	14.8	12.5	13.2	14.3	11.5	12.1	9.7	8.8	8.6	11.2	13.2	11.2	12.4	12.5	11.1	11.7	9.7	10.6	?	9.4	7.9	8.8	8.8	10.0	10.6	9.7	8.9	9.2	10.7	9.7
1928	14.7	17.5	12.3	12.9	14.1	13.3	12.9	14.0	12.5	11.6	9.7	9.3	9.9	11.7	12.2	9.7	10.7	10.5	10.8	10.7	9.3	9.8	3.2	8.2	9.2	7.8	8.3	7.9	9.5	9.1	9.7	10.2	8.7	8.7
1929	17.3	18.1	16.8	16.0	18.7	16.7	15.3	17.0	15.7	15.4	12.1	10.3	10.5	14.0	15.1	13.9	15.1	14.4	13.6	14.8	11.8	13.0	6.8	10.0	10.2	9.7	9.5	10.6	11.8	10.8	9.8	10.3	11.8	10.8

TABLE V. DEATHS UNDER 1 PER 1,000 BIRTHS IN WARDS.

YEAR.	St. Paul's	St. Mary's	Duddeston and Nechells	St. Bartholomew's	St. Martin's	Market Hall	Ladywood	Central Wards	Lozells	Aston	Washwood Heath	Saltley	Small Heath	Sparkbrook	Balsall Heath	Edgbaston	Rotton Park	All Saints'	Middle Ring	Soho	Sandwell	Handsworth	Perry Barr	Erdington North	Erdington South	Yardley	Acock's Green	Sparkhill	Moseley and King's Heath	Selly Oak	King's Norton	Northfield	Harborne	Outer Ring
1912	134	194	180	134	136	138	123	148	102	105	97	109	85	90	81	87	112	98	97	76	87	78	?	62	97	109	79	61	74	57	80	60	87	77
1913	162	229	179	205	180	155	159	181	100	136	114	94	113	98	99	109	137	124	112	104	79	69	?	68	82	67	102	70	60	82	78	63	54	74
1914	153	195	173	167	148	166	166	167	115	138	87	109	89	102	80	72	134	135	106	89	64	94	?	104	74	83	95	75	54	70	78	90	53	79
1915	170	187	158	180	157	123	126	157	102	128	123	86	86	87	91	82	118	108	101	92	106	94	?	84	69	56	73	55	64	94	87	123	81	83
Average	**155**	**201**	**172**	**171**	**155**	**145**	**143**	**163**	**105**	**127**	**105**	**99**	**93**	**94**	**88**	**87**	**125**	**116**	**104**	**90**	**84**	**84**	?	**79**	**80**	**79**	**87**	**63**	**63**	**76**	**81**	**84**	**69**	**78**
1916	160	159	164	139	150	139	121	147	82	114	93	79	69	70	62	98	96	96	86	94	68	91	?	80	39	83	76	55	76	83	61	59	69	72
1917	115	168	136	132	112	89	112	123	93	105	96	97	94	110	83	73	93	122	97	74	37	71	?	74	80	95	75	90	41	66	77	50	44	67
1918	156	148	104	137	120	152	104	132	111	113	70	100	69	99	86	80	101	88	92	83	64	72	?	57	57	67	82	66	66	58	60	70	89	69
1919	109	103	105	102	95	120	100	105	79	93	90	64	67	60	64	61	97	88	76	97	71	63	?	39	79	83	47	36	44	76	69	43	79	64
1920	112	121	93	111	102	85	105	104	80	78	83	72	80	80	98	64	79	78	79	55	75	51	?	61	47	54	64	73	53	64	43	28	50	55
Average	**130**	**140**	**120**	**124**	**116**	**117**	**108**	**122**	**89**	**101**	**86**	**82**	**76**	**84**	**79**	**75**	**93**	**94**	**86**	**81**	**63**	**70**	?	**62**	**60**	**76**	**69**	**64**	**56**	**69**	**62**	**50**	**66**	**65**
1921	106	116	104	113	85	117	96	105	87	82	91	75	57	60	62	75	78	104	77	57	72	69	?	44	68	43	62	67	69	47	60	97	42	61
1922	105	117	102	115	107	113	102	109	58	84	69	82	68	92	81	75	101	90	80	66	68	51	?	54	69	55	79	56	81	69	41	58	58	62
1923	104	103	99	81	93	80	79	91	60	85	68	59	62	59	54	51	67	79	64	54	57	45	?	48	58	73	49	34	49	53	76	21	46	51
1924	87	123	103	119	110	81	86	101	68	87	62	95	85	64	83	67	85	80	77	63	67	49	?	70	52	62	50	58	69	74	59	54	57	60
1925	120	100	101	106	107	119	73	104	87	104	69	65	58	77	64	70	53	92	74	66	39	64	?	54	32	45	53	55	39	51	66	39	42	50
Average	**104**	**112**	**102**	**107**	**100**	**102**	**87**	**102**	**72**	**88**	**72**	**75**	**66**	**70**	**69**	**68**	**77**	**89**	**74**	**61**	**61**	**56**	?	**54**	**56**	**56**	**59**	**54**	**61**	**59**	**60**	**54**	**49**	**57**
1926	106	122	79	98	86	106	81	97	52	77	66	43	48	70	52	59	63	65	59	76	98	53	?	46	52	56	48	70	54	69	65	68	90	65
1927	115	115	104	81	89	85	78	95	78	80	73	64	34	73	87	66	89	82	73	81	44	47	?	59	49	66	36	71	42	61	44	45	78	56
1928	71	101	73	89	84	100	69	84	63	57	62	71	59	56	62	46	75	46	60	74	68	34	0	62	40	43	49	47	41	82	54	46	65	50
1929	120	111	125	98	108	73	108	106	80	86	92	69	50	45	51	84	82	72	71	92	46	43	0	56	49	65	68	74	38	76	54	60	58	56

Table VI. Birth-Rates in Wards.

Year.	St. Paul's	St. Mary's	Duddeston and Nechells	St. Bartholomew's	St. Martin's	Market Hall	Ladywood	Central Wards	Lozells	Aston	Washwood Heath	Saltley	Small Heath	Sparkbrook	Balsall Heath	Edgbaston	Rotton Park	All Saints'	Middle Ring	Soho	Sandwell	Handsworth	Perry Barr	Erdington North	Erdington South	Yardley	Acock's Green	Sparkhill	Moseley and King's Heath	Selly Oak	King's Norton	Northfield	Harborne	Outer Ring
1912	30.6	33.6	36.0	33.4	32.1	24.7	28.1	31.2	23.0	30.5	29.4	27.7	23.6	25.3	23.3	17.0	28.9	29.7	25.8	22.2	21.0	18.9	?	22.7	21.6	23.2	25.1	19.2	17.8	27.1	23.1	20.6	23.9	22.0
1913	32.1	35.9	38.4	35.9	33.5	25.8	30.6	33.2	24.0	32.5	30.9	31.6	24.3	25.7	23.4	15.9	30.2	31.1	27.0	22.7	22.9	20.1	?	23.7	22.5	26.0	29.6	18.2	18.4	27.4	24.3	22.8	23.3	23.2
1914	34.3	36.0	37.3	34.3	33.7	26.3	29.8	33.1	22.5	31.2	29.3	27.6	22.6	25.6	24.0	16.4	27.8	28.5	25.5	23.0	22.1	19.7	?	22.0	22.4	22.6	26.5	18.2	16.3	25.5	20.9	24.2	20.6	21.8
1915	31.8	32.8	34.6	31.0	30.0	22.2	25.7	29.7	21.6	27.7	23.3	26.1	20.8	24.3	21.8	16.2	24.7	26.4	23.3	19.8	19.7	18.0	?	21.6	19.4	20.2	24.0	15.7	15.4	23.5	21.5	20.7	20.1	20.0
Average	**32.2**	**34.6**	**36.6**	**33.6**	**32.3**	**24.7**	**28.5**	**31.8**	**22.8**	**30.5**	**28.2**	**28.2**	**22.8**	**25.2**	**23.1**	**16.4**	**27.9**	**28.9**	**25.4**	**21.9**	**21.4**	**19.2**	?	**22.5**	**21.5**	**23.0**	**26.3**	**17.8**	**17.0**	**25.9**	**22.4**	**22.1**	**22.0**	**21.7**
1916	28.9	29.3	30.9	28.8	28.0	19.8	25.8	27.4	20.8	28.8	23.8	26.0	21.8	23.0	19.5	15.3	23.8	26.6	22.9	19.3	19.3	18.0	?	19.4	19.8	19.4	22.7	17.6	15.7	24.0	21.3	19.1	19.0	19.6
1917	26.7	23.3	27.5	28.5	24.5	18.8	23.2	24.6	19.4	23.1	20.4	20.2	19.9	19.2	18.1	13.4	20.7	22.1	19.7	13.2	16.5	15.0	?	14.9	17.4	19.9	19.7	12.8	13.4	19.2	14.5	16.2	16.4	16.1
1918	24.7	24.1	29.2	27.3	24.3	21.6	23.9	25.0	19.2	21.3	20.0	20.1	18.6	18.0	18.2	13.8	21.0	22.4	19.3	14.7	12.5	14.4	?	16.2	15.9	18.8	18.7	13.0	13.5	18.1	16.3	20.9	14.0	15.9
1919	29.1	28.6	29.5	29.0	29.1	21.5	26.6	27.6	18.5	24.4	21.2	19.3	17.7	19.8	18.5	15.0	22.0	23.3	20.0	17.3	14.7	16.0	?	17.2	19.2	18.1	18.2	14.5	14.8	21.1	15.0	17.2	15.3	16.8
1920	37.6	37.2	39.6	35.9	34.9	30.2	33.5	35.6	25.2	32.0	27.9	28.6	23.4	25.9	25.1	18.8	30.2	31.3	26.8	23.8	21.7	21.4	?	24.7	22.8	26.4	24.4	19.3	19.9	26.7	21.3	22.9	19.6	22.7
Average	**29.4**	**28.5**	**31.3**	**29.9**	**28.2**	**22.4**	**26.6**	**28.0**	**20.6**	**25.9**	**22.7**	**22.8**	**20.3**	**21.2**	**19.9**	**15.3**	**23.5**	**25.1**	**21.7**	**17.7**	**16.9**	**17.0**	?	**18.5**	**19.0**	**20.5**	**20.7**	**15.4**	**15.5**	**21.8**	**17.7**	**19.3**	**16.9**	**18.2**
1921	31.8	35.7	32.9	32.3	30.8	28.0	30.8	31.8	21.8	28.7	23.8	23.9	20.5	23.8	22.5	15.2	24.8	25.0	23.0	20.1	16.4	17.7	?	21.1	20.0	20.5	21.0	19.3	14.8	20.8	18.0	19.6	20.2	19.2
1922	29.7	30.8	27.5	28.5	28.6	20.8	25.4	27.3	18.3	25.4	21.9	20.6	18.3	20.2	21.5	14.1	22.6	23.6	20.7	18.7	15.0	15.4	?	20.7	15.7	18.9	18.0	17.4	14.3	17.6	17.6	17.5	15.5	17.1
1923	28.2	30.3	27.5	29.0	27.0	20.7	25.8	26.9	18.4	23.1	22.1	21.6	15.5	18.5	18.6	13.5	21.7	21.9	19.5	16.0	14.1	14.2	?	18.1	16.8	17.4	17.0	17.1	13.2	17.7	17.1	20.8	13.0	16.3
1924	28.0	28.1	27.0	26.8	24.1	20.7	21.9	25.2	17.4	23.1	20.6	18.4	14.1	16.9	18.4	13.3	19.3	20.6	18.2	15.1	12.7	12.8	?	17.1	17.7	15.0	16.7	16.2	12.8	15.7	14.5	19.8	14.5	15.4
1925	23.5	28.3	25.3	25.1	24.6	19.5	22.2	24.1	16.7	22.5	19.7	19.7	14.6	16.4	17.0	12.0	19.9	20.1	17.9	16.3	12.4	12.6	?	20.3	14.9	16.3	16.7	17.1	11.5	16.0	14.2	17.7	11.0	15.2
Average	**28.2**	**30.6**	**28.0**	**28.3**	**27.0**	**21.9**	**25.2**	**27.1**	**18.5**	**24.6**	**21.6**	**20.8**	**16.6**	**19.2**	**19.6**	**13.6**	**21.7**	**22.2**	**19.9**	**17.2**	**14.1**	**14.5**	?	**19.5**	**17.0**	**17.6**	**17.9**	**17.4**	**13.3**	**17.6**	**16.3**	**19.1**	**14.8**	**16.6**
1926	25.4	27.8	24.8	24.8	23.8	18.9	22.9	24.1	17.6	20.4	18.8	19.8	15.3	15.4	17.0	12.1	18.0	19.4	17.4	14.2	12.6	11.0	?	20.8	14.8	16.5	14.3	17.1	12.5	14.1	14.1	16.5	11.5	14.6
1927	25.4	25.8	23.1	23.3	22.0	19.2	20.4	22.7	16.4	19.9	17.7	17.7	15.2	15.3	16.0	11.6	16.5	17.6	16.4	14.1	12.2	11.7	?	20.3	14.8	18.9	14.3	16.2	15.4	13.6	13.6	18.3	11.2	15.0
1928	24.0	27.3	22.4	21.5	22.2	18.4	18.9	22.1	16.1	19.8	17.5	17.7	15.2	15.3	16.5	11.4	17.1	18.2	16.5	13.1	11.5	10.2	8.4	18.5	15.2	19.9	18.8	17.7	12.6	13.2	13.3	15.3	12.5	14.3
1929	23.8	25.6	20.4	21.5	22.3	19.1	19.8	21.8	15.3	17.8	16.4	17.4	14.9	14.4	14.2	11.0	15.8	17.0	15.4	11.5	10.9	12.0	16.8	18.6	16.8	18.1	20.0	16.0	12.8	13.0	13.4	16.0	12.6	14.9

TABLE VII.

Cases of Infectious Disease notified during the Year 1929. *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	—	—	—	—	—	10	5	2	3	4	2	4	1	—	—	—	31
Continued Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaria	—	—	—	—	—	—	—	—	—	2	3	—	—	—	—	—	5
Trench Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	2
Scarlet Fever	7	42	72	152	183	1228	439	131	69	65	17	6	2	—	—	—	2413
Diphtheria	12	45	103	107	135	699	229	116	63	58	24	14	5	—	1	—	1611
Dysentery	—	—	2	2	2	8	3	—	—	—	2	—	—	—	—	—	19
Erysipelas	17	6	2	3	4	23	20	32	34	82	112	125	90	50	25	2	627
Pulmonary Tuberculosis	—	4	1	8	7	64	57	146	190	249	220	209	84	30	1	—	1270
Tuberculous Meningitis	2	9	4	2	1	2	4	—	—	—	—	—	—	—	—	—	24
Tuberculosis of Peritoneum and Intestines	4	4	2	—	1	11	9	8	4	3	1	1	—	—	—	—	48
Tuberculosis of Spinal Column	—	—	2	1	2	4	5	8	6	5	—	5	2	—	—	—	40
Tuberculosis of Joints	—	—	2	2	—	18	12	11	7	6	5	2	1	—	—	—	66
Tuberculosis of Other Organs	1	5	3	—	4	24	12	11	8	6	6	2	3	1	—	—	86
Disseminated Tuberculosis	1	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	4
Encephalitis Lethargica	—	1	1	—	1	1	1	3	—	5	6	5	3	—	—	—	27
Cerebro-Spinal Fever	8	3	—	2	—	—	—	—	1	—	—	1	—	—	—	—	15
Poliomyelitis	—	1	2	2	—	1	—	—	—	—	—	—	—	—	—	—	6
Polio-encephalitis	—	—	—	—	—	1	1	—	—	—	—	1	—	—	—	—	3
Pneumonia	245	370	268	182	109	382	112	220	208	442	491	454	350	253	122	16	4224
Puerperal Fever	—	—	—	—	—	—	—	3	20	57	14	—	—	—	—	—	94
Puerperal Pyrexia	—	—	—	—	—	—	—	4	25	68	20	1	—	—	—	—	118
Ophthalmia Neonatorum	522	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	522
TOTAL	819	490	464	463	449	2476	909	696	640	1053	924	830	541	334	149	18	11255

TABLE VIII.

Cases of Infectious Diseases notified during the Year 1929. Classified according to Wards.

Disease.	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	Perry Barr	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	1	—	1	—	—	2	—	—	1	—	—	—	3	—	1	—	—	—	4	—	—	3	—	—	3	5	—	—	—	1	5	1	31
Continued Fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaria	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	5
Trench Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	2
Scarlet Fever	158	72	112	71	128	37	128	54	29	34	53	38	82	15	65	50	3	64	137	125	85	57	83	113	28	65	63	64	135	142	61	62	2413
Diphtheria	69	85	68	48	62	29	64	15	39	20	19	54	52	17	49	6	3	32	76	71	71	111	58	34	33	46	43	53	56	68	83	77	1611
Dysentery	—	—	1	—	—	3	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	11	19
Erysipelas	16	20	28	19	67	12	18	11	11	4	5	17	16	6	24	5	2	20	24	32	29	24	37	3	10	31	13	33	14	16	25	35	627
Pulmonary Tuberculosis	51	63	74	46	104	26	40	20	28	17	14	41	40	34	22	15	7	61	57	82	59	62	39	18	21	32	29	40	33	38	44	13	1270
Tubercular Meningitis	—	—	1	—	2	1	3	2	—	—	1	1	2	—	—	—	—	1	1	1	2	3	—	1	1	—	—	—	—	1	—	—	24
Tuberculosis of Peritoneum and Intestines	2	1	1	2	4	1	—	2	2	—	—	1	1	—	—	—	—	4	2	2	3	4	1	1	4	1	—	2	—	1	6	—	48
Tuberculosis of Spinal Column	1	3	2	2	1	3	3	1	1	—	—	—	1	—	—	—	—	2	5	1	—	1	1	—	7	—	1	1	2	—	1	—	40
Tuberculosis of Joints	1	2	—	1	3	3	2	—	2	2	1	4	5	2	2	1	—	6	2	3	1	2	4	1	—	4	—	3	2	1	6	—	66
Tuberculosis of Other Organs	4	3	3	1	8	4	6	—	—	1	1	1	5	2	3	—	—	4	10	5	5	4	2	3	2	1	—	1	4	1	—	2	86
Disseminated Tuberculosis	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	4
Encephalitis Lethargica	—	1	3	—	2	—	—	—	1	—	1	1	1	—	—	—	—	1	1	2	1	1	—	1	1	1	2	1	—	4	1	—	27
Cerebro-Spinal Fever ...	—	—	1	—	4	—	—	—	1	—	—	1	—	—	1	—	—	1	1	2	1	—	—	—	1	—	—	1	—	—	—	—	15
Poliomyelitis	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	2	—	—	—	—	—	—	—	—	—	—	—	6
Polio-encephalitis ...	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	3
Pneumonia	189	150	299	135	401	111	114	60	62	33	67	197	140	54	134	35	2	186	212	238	238	155	153	37	70	174	43	120	118	96	96	105	4224
Puerperal Fever ...	10	3	8	4	4	2	4	—	4	3	6	1	2	—	1	—	—	2	2	5	3	1	6	—	4	5	2	4	1	2	4	1	94
Puerperal Pyrexia ...	5	5	5	3	14	1	4	5	1	3	5	5	2	2	3	5	—	4	4	5	8	1	3	1	4	6	1	4	4	2	2	1	118
Ophthalmia Neonatorum	18	12	19	15	40	4	18	4	6	2	5	18	26	11	7	—	2	6	70	37	50	25	31	4	4	18	7	16	9	29	6	3	522
Total	526	420	628	347	847	239	406	175	188	119	178	380	379	143	312	118	19	394	613	612	559	454	419	217	193	389	205	343	378	403	341	311	11255

TABLE IX. PULMONARY TUBERCULOSIS. CASE-RATES IN WARDS.

YEAR.	St. Paul's	St. Mary's	Duddeston and Nechells	St. Bartholomew's	St. Martin's	Market Hall	Ladywood	Central Wards	Lozells	Aston	Washwood Heath	Saltley	Small Heath	Sparkbrook	Balsall Heath	Edgbaston	Rotton Park	All Saints'	Middle Ring	Soho	Sandwell	Handsworth	Perry Barr	Erdington North	Erdington South	Yardley	Acock's Green	Sparkhill	Moseley and King's Heath	Selly Oak	King's Norton	Northfield	Harborne	Outer Ring
1912	7.64	7.63	6.70	9.76	7.22	6.92	7.47	7.62	4.53	4.92	4.18	5.87	6.14	4.28	5.82	3.94	4.75	6.30	5.07	2.53	2.37	3.46	?	1.61	3.08	3.49	5.08	4.84	3.32	3.24	3.24	1.78	3.63	3.21
1913	5.13	7.14	6.44	10.63	8.49	7.29	6.05	7.31	3.22	4.85	3.79	5.35	4.85	4.97	5.84	3.91	4.81	5.18	4.68	2.70	1.70	2.79	?	1.23	2.43	3.66	4.37	3.87	2.86	2.95	2.90	1.18	2.89	2.73
1914	4.53	5.74	5.13	6.88	6.16	4.21	5.42	5.44	2.59	3.52	3.64	2.87	4.06	4.28	4.12	2.71	4.72	4.56	3.71	2.76	2.32	2.17	?	2.29	2.05	2.18	2.67	2.56	1.73	1.42	2.74	1.93	2.36	2.24
1915	5.25	5.44	4.94	4.89	6.07	3.92	4.14	4.95	3.22	3.02	3.19	3.48	3.86	3.67	3.82	2.40	3.24	4.34	3.42	2.11	1.68	2.30	?	1.81	1.56	2.82	2.22	2.27	1.43	2.24	2.70	1.65	2.13	2.07
Average	**5.64**	**6.49**	**5.80**	**8.04**	**6.98**	**5.58**	**5.77**	**6.33**	**3.39**	**4.08**	**3.70**	**4.39**	**4.73**	**4.30**	**4.90**	**3.24**	**4.38**	**5.09**	**4.22**	**2.52**	**2.02**	**2.68**	?	**1.73**	**2.28**	**3.04**	**3.59**	**3.38**	**2.33**	**2.46**	**2.89**	**1.63**	**2.75**	**2.56**
1916	5.11	6.75	6.64	6.66	5.66	4.33	4.30	5.64	3.87	3.53	3.99	4.19	4.44	3.67	3.15	2.81	4.05	3.94	3.76	2.86	2.35	2.78	?	1.66	2.17	2.50	2.65	2.53	1.64	2.27	2.14	1.87	1.19	2.20
1917	5.26	5.67	4.52	6.32	4.36	6.13	4.12	5.20	3.47	3.03	3.42	2.29	3.34	2.85	3.12	2.16	3.62	3.77	3.11	2.17	2.61	2.59	?	2.25	2.21	2.31	3.58	2.81	1.33	2.79	1.97	1.82	1.85	2.33
1918	5.46	4.42	4.34	5.33	5.32	5.66	6.80	5.33	3.13	3.09	2.72	2.08	3.40	3.56	2.97	2.81	4.04	3.35	3.12	1.38	1.98	3.48	?	2.24	2.46	2.15	2.66	2.49	2.12	2.53	1.35	3.33	1.80	2.31
1919	4.30	4.94	4.13	4.00	4.45	3.99	4.14	4.28	3.30	3.22	2.05	1.99	2.30	2.62	2.79	2.22	4.02	2.89	2.74	2.55	1.35	2.89	?	2.14	2.36	1.90	2.70	2.23	1.22	2.34	1.66	1.90	1.81	2.08
1920	3.63	4.91	4.09	4.23	4.13	2.62	4.12	3.96	2.56	2.95	2.39	2.48	2.11	2.61	2.75	1.50	4.16	3.20	2.67	2.81	1.48	2.84	?	2.41	2.19	2.18	2.13	2.03	1.83	2.43	1.65	2.04	1.78	2.14
Average	**4.75**	**5.34**	**4.74**	**5.31**	**4.78**	**4.55**	**4.70**	**4.88**	**3.27**	**3.16**	**2.91**	**2.61**	**3.12**	**3.06**	**2.96**	**2.30**	**3.98**	**3.43**	**3.08**	**2.35**	**1.95**	**2.92**	?	**2.14**	**2.28**	**2.21**	**2.74**	**2.42**	**1.63**	**2.47**	**1.75**	**2.19**	**1.69**	**2.21**
1921	3.13	3.49	3.41	2.51	3.01	2.80	2.55	2.99	2.20	2.65	2.11	1.76	1.58	2.21	2.00	1.28	2.33	2.26	2.04	1.54	1.08	2.09	?	1.44	1.46	1.81	1.47	2.05	1.62	1.41	0.77	0.83	1.39	1.46
1922	2.23	3.20	2.80	2.47	3.42	2.40	2.21	2.68	1.59	1.74	1.81	1.17	1.44	1.41	2.17	1.21	1.63	1.81	1.60	1.15	0.62	1.17	?	1.71	1.40	1.45	1.20	1.88	0.84	1.74	0.67	1.81	1.44	1.31
1923	2.13	3.14	3.20	2.51	3.88	2.46	1.97	2.76	1.90	1.95	1.79	1.41	1.69	1.88	2.22	1.40	2.28	1.60	1.81	1.40	0.61	1.31	?	1.52	1.39	1.39	1.35	1.57	1.31	1.04	1.09	1.22	1.08	1.25
1924	2.16	3.02	2.69	2.40	4.39	2.11	2.10	2.70	1.65	2.43	1.88	1.62	1.54	1.32	2.09	1.01	2.20	1.62	1.74	1.38	0.76	1.31	?	0.92	1.52	1.27	1.34	1.25	1.11	0.93	1.34	1.28	1.53	1.23
1925	1.54	2.37	2.22	2.44	3.41	1.90	1.85	2.25	1.59	2.05	1.37	1.34	1.44	1.09	1.58	1.09	1.62	1.10	1.43	1.19	0.97	1.47	?	1.49	0.92	0.99	1.06	1.34	0.75	1.14	1.01	1.47	0.81	1.12
Average	**2.24**	**3.04**	**2.86**	**2.47**	**3.62**	**2.33**	**2.14**	**2.68**	**1.79**	**2.16**	**1.79**	**1.46**	**1.54**	**1.58**	**2.01**	**1.20**	**2.01**	**1.68**	**1.72**	**1.33**	**0.81**	**1.47**	?	**1.42**	**1.34**	**1.38**	**1.28**	**1.62**	**1.13**	**1.25**	**0.98**	**1.32**	**1.25**	**1.27**
1926	2.28	2.50	2.21	1.89	2.52	1.46	1.62	2.07	1.62	1.98	1.86	1.30	0.83	1.22	1.85	0.97	1.33	1.13	1.41	0.64	0.96	1.27	?	0.95	1.03	0.78	0.88	1.02	0.67	1.21	0.83	2.06	1.32	1.05
1927	2.01	2.87	2.14	1.97	2.24	1.90	1.90	2.15	1.36	1.69	1.05	1.45	0.95	1.14	1.53	1.02	1.52	1.35	1.30	1.43	0.87	0.61	?	0.63	0.72	0.87	0.53	0.91	0.87	1.33	1.16	1.30	0.70	0.92
1928	1.90	2.52	2.28	1.80	2.52	1.55	1.89	2.07	1.48	1.82	1.06	0.98	1.12	1.29	1.10	0.92	1.34	1.56	1.27	1.23	1.08	1.25	0.00	0.92	1.17	1.25	0.73	0.93	0.71	1.32	1.00	1.33	0.81	0.98
1929	2.08	1.90	2.45	1.50	1.98	2.07	1.46	1.92	1.27	1.92	0.95	0.97	0.92	1.17	1.27	0.75	1.54	1.55	1.23	1.09	0.80	0.97	2.50	1.09	0.83	1.47	1.00	0.78	0.60	0.70	0.56	1.30	0.96	1.05

TABLE X.

Meteorology and Mortality in each week of the year 1929.

Week.		Total Deaths.	Deaths under 1 year.	Deaths from						Temperature of the Air.			Temperature of Ground	Horizontal Movement of Air in Miles.	Hours of Sunshine.	Rainfall in Inches.
No.	Ending. 1929.			Measles.	Whooping Cough.	Diarrhoea 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. 5	266	34	1	—	3	19	3	59	39°	30°	33.9°	45.4°	2035	2.6	0.43
2	„ 12	296	36	1	—	3	16	2	62	38	27	32.0	44.3	1329	1.1	0.18
3	„ 19	280	25	1	1	1	15	1	67	43	28	34.9	43.5	1503	4.0	0.22
4	„ 26	280	27	6	—	2	18	2	52	40	28	33.5	43.0	1061	12.2	0.03
5	Feb. 2	257	25	1	2	2	16	—	48	55	27	40.9	42.6	1712	3.3	1.22
6	„ 9	290	23	5	—	1	18	2	48	44	24	36.5	43.2	1121	3.5	0.08
7	„ 16	321	29	6	3	—	27	2	64	41	13	24.0	43.0	1575	13.3	0.01
8	„ 23	506	48	13	1	1	27	6	133	49	20	33.5	42.2	953	17.6	0.00
9	Mar. 2	771	41	14	8	2	30	2	219	44	21	30.0	41.2	1641	22.7	0.08
10	„ 9	894	59	15	5	3	30	3	258	65	26	41.0	40.7	903	35.7	0.00
11	„ 16	660	54	18	3	3	29	3	180	64	31	42.1	41.7	1284	22.7	0.00
12	„ 23	455	36	9	3	1	19	4	96	63	28	45.8	42.2	1167	37.4	0.10
13	„ 30	269	24	7	3	—	22	4	52	70	39	52.5	43.6	1161	50.1	0.06
14	April 6	262	31	9	11	1	24	3	45	52	28	43.2	44.3	2035	40.5	0.11
15	„ 13	245	19	6	4	—	20	4	43	59	33	42.6	44.3	2038	24.1	0.22
16	„ 20	227	26	6	4	3	24	3	40	69	36	47.3	44.3	1647	25.1	0.01
17	„ 27	226	15	14	7	2	16	4	29	54	30	42.8	44.6	1272	38.1	0.27
18	May 4	224	27	7	7	6	15	3	27	58	36	45.1	44.6	1561	26.7	0.38
19	„ 11	240	19	7	4	1	24	5	28	60	38	49.9	45.2	1926	38.3	0.93
20	„ 18	210	18	7	2	1	18	3	29	61	41	50.3	45.9	1663	44.5	0.48
21	„ 25	226	25	11	5	3	18	3	22	76	42	57.8	47.1	1308	65.7	0.02
22	June 1	214	21	1	3	5	20	4	24	71	45	56.2	48.4	1888	59.3	0.26
23	„ 8	180	20	7	1	—	10	2	25	68	40	53.8	49.1	1533	24.3	0.80
24	„ 15	178	25	2	1	1	13	4	22	72	44	56.4	49.5	1506	54.1	0.91
25	„ 22	201	24	2	5	4	17	4	28	74	47	57.9	50.3	1467	52.6	0.06
26	„ 29	171	18	1	3	3	12	5	18	66	44	54.6	50.5	1738	67.1	0.08
27	July 6	199	15	1	—	5	15	2	24	68	47	56.3	51.0	1326	16.9	0.42
28	„ 13	186	19	2	1	4	12	2	23	80	46	59.6	51.2	1451	35.7	0.34
29	„ 20	197	23	6	3	8	18	5	20	86	51	66.6	52.7	1137	81.6	0.00
30	„ 27	166	17	—	1	2	13	2	22	81	50	62.1	53.7	1165	40.7	0.02
31	Aug. 3	168	14	1	3	3	12	2	13	68	48	57.6	53.7	1876	16.7	1.64
32	„ 10	179	19	—	—	5	9	2	11	69	46	58.2	53.4	1479	34.4	0.29
33	„ 17	173	21	3	—	6	14	1	13	67	48	58.3	53.2	1294	43.6	0.34
34	„ 24	175	24	—	—	5	14	3	11	73	46	59.6	53.3	1449	23.5	0.28
35	„ 31	155	17	1	—	6	16	4	8	79	47	62.3	53.8	1236	54.8	0.26
36	Sept. 7	161	25	—	1	6	13	5	6	80	52	64.1	54.5	1028	55.1	0.24
37	„ 14	151	17	—	4	5	14	5	9	83	46	64.1	55.0	1104	53.5	0.00
38	„ 21	152	24	1	2	10	9	2	9	70	47	58.6	55.3	1557	28.1	0.05
39	„ 28	197	41	—	2	30	15	2	9	73	46	58.2	55.0	1225	41.6	0.00
40	Oct. 5	188	35	1	2	14	14	5	18	65	41	51.5	54.5	1811	24.3	2.48
41	„ 12	181	29	—	2	13	10	2	16	65	39	51.0	53.8	1926	24.0	0.81
42	„ 19	183	20	1	—	10	21	3	23	62	37	52.1	52.5	1307	21.9	0.03
43	„ 26	192	25	—	—	9	13	3	20	56	33	45.9	52.3	1492	22.1	1.09
44	Nov. 2	183	22	—	2	5	21	—	23	54	33	43.4	51.2	1431	29.3	0.38
45	„ 9	222	26	—	1	7	17	2	34	55	35	45.6	50.0	1843	13.5	1.31
46	„ 16	193	18	—	—	6	13	2	32	55	29	39.4	49.3	1922	27.6	1.53
47	„ 23	220	20	—	2	3	19	1	34	55	31	44.0	48.3	1994	3.9	1.78
48	„ 30	223	20	—	—	5	18	1	29	55	37	46.2	48.0	1875	8.7	2.40
49	Dec. 7	188	12	—	3	1	24	2	20	54	39	44.3	47.8	2621	12.7	1.95
50	„ 14	219	25	—	3	3	15	1	21	55	36	44.6	47.7	2822	10.1	1.15
51	„ 21	191	28	1	2	3	18	4	21	47	31	37.6	47.2	1484	15.2	0.45
52	„ 28	214	23	—	2	2	13	—	28	49	29	39.4	46.7	1871	12.8	1.65

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