

Counties of England and Wales, in the Year 1912—continued.

Minor figures are not given from the revised figures to be presented to Parliament in the Annual Report for the year 1912.

District	Deaths			Births			Marriages		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Birmingham	1,525	734	791	1,303	631	672	1,087	511	576
London	1,085	504	581	1,318	658	660	1,000	450	550
Manchester	1,175	568	607	1,342	664	678	1,113	504	609
Liverpool	1,015	483	532	1,241	613	628	1,003	448	555
Sheffield	1,050	492	558	1,305	644	661	1,072	492	580
Edinburgh	1,000	470	530	1,250	625	625	1,000	470	530
Glasgow	1,000	470	530	1,250	625	625	1,000	470	530
Belfast	1,000	470	530	1,250	625	625	1,000	470	530
Bristol	1,000	470	530	1,250	625	625	1,000	470	530
Cardiff	1,000	470	530	1,250	625	625	1,000	470	530
Cardigan	1,000	470	530	1,250	625	625	1,000	470	530
Merthyr	1,000	470	530	1,250	625	625	1,000	470	530
Neath	1,000	470	530	1,250	625	625	1,000	470	530
Rhondda	1,000	470	530	1,250	625	625	1,000	470	530
Swansea	1,000	470	530	1,250	625	625	1,000	470	530
Tonypandy	1,000	470	530	1,250	625	625	1,000	470	530
Wrexham	1,000	470	530	1,250	625	625	1,000	470	530
Cardiff	1,000	470	530	1,250	625	625	1,000	470	530
Cardigan	1,000	470	530	1,250	625	625	1,000	470	530
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Swansea	1,000	470	530	1,250	625	625	1,000	470	530
Tonypandy	1,000	470	530	1,250	625	625	1,000	470	530
Wrexham	1,000	470	530	1,250	625	625	1,000	470	530

HERBERT MARRIOTT
Registrar-General

SEVENTY-FIFTH ANNUAL REPORT

OF THE

REGISTRAR-GENERAL

OF

BIRTHS, DEATHS, AND MARRIAGES IN ENGLAND AND WALES.

(1912.)

Presented to both Houses of Parliament by Command of His Majesty.



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Indexed by
Charles
Date 1.7.14.
By B. B. W.

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REPORT

TO

THE RIGHT HONOURABLE HERBERT L. SAMUEL, M.P.,
PRESIDENT OF THE LOCAL GOVERNMENT BOARD, &c., &c.

(1912.)

SIR,

I HAVE the honour to submit to you my Report on the estimated population, and on the marriages, births, and deaths registered in England and Wales during the year 1912.

From returns furnished by the registrars acting throughout the country, the provisional numbers of marriages, births, and deaths for the year 1912 have already been published in the "General Abstract," and in somewhat greater detail as regards the causes of death for the registration counties of England and Wales, and for London and other large towns in the "Annual Summary," which publication was issued in June, 1913.

The present report also relates to the year 1912, but the statistics have been compiled from the registers deposited in this Office, and they have been analysed in far greater detail than was possible in the "Annual Summary."

The salient features of the vital statistics of 1912 are as follows:—The marriage-rate was 15·5 per 1,000, being 0·1 above the average in the ten years 1902-1911. It is satisfactory to note that in each of the three years 1910-1912 the marriage-rate has shown an increase upon that in the preceding year. The provisional figures for 1913, however, do not indicate a continuance of this rise, the rate remaining at 15·5 per 1,000.

The birth-rate in 1912 was 23·8 per 1,000 and was 3·0 below the average for the preceding decennium; it was the lowest rate on record, being no less than 0·6 below that of 1911, which was the next lowest. The provisional figures for 1913, however, indicate a rise of 0·1 per 1,000 upon the rate in 1912, this being the first year since 1908 to show an increase. In view of the fact that the rise in 1908 proved to be only a temporary check to the general downward tendency it would be unsafe to conclude that there is any present indication of a real check in the decline of the birth-rate.

The death-rate in 1912 was 13·3 per 1,000, and was 1·9 below the average for the ten preceding years. It was the lowest rate on record, being 0·2 per 1,000 below the lowest previously recorded, that in 1910. Although the climatic conditions of the two years were very similar the advantage of 1912 was mainly due to greater diminution of the mortality of children under the age of five years.

Infant mortality was 95 per 1,000 births, being 30 per 1,000 below the average for the preceding decennium. It was the lowest rate on record, being 10 per 1,000 births below the lowest rate previously recorded, that for the year 1910. It is of interest to note that if mortality from diarrhoea—naturally low on account of the cool and wet summer—is excluded from the comparison, the infant mortality of 1912 still remains the lowest yet recorded. The provisional infant mortality rate for 1913, when the summer conditions were much less favourable to infant life, is 109 per 1,000 births.

As regards the principal epidemic diseases, mortality from measles was above the average. On the other hand, the death-rates from enteric fever, diphtheria and croup conjointly, and diarrhoeal diseases were the lowest recorded. The mortality from scarlet fever was the lowest, except for the rate in 1911, and that for whooping cough the lowest, except for 1909 and 1911.

Cancer caused a higher death-rate both among males and among females than in any preceding year, but the rate from tuberculosis as a whole was the lowest on record. The mortality from diseases affecting the lungs was very low. Lower mortality from phthisis has been experienced in 1910 only (the rate being then merely two per million lower), and from bronchitis and pneumonia jointly in 1910 and 1911 only.

The new features introduced in last year's Report, which so completely altered its basis and its form as really to involve the inauguration of a new series, appear to have met with general approval, and are retained in the present volume. The improvements thus effected have been mainly in the machinery and methods of tabulation, and have necessarily left untouched both the extent of the data dealt with and the methods of its collection. Progress in regard to both matters can only be attained by a thorough

revision of the present system of registration, which would involve legislation. Such legislation, however, is much to be desired, not only for statistical but also for administrative reasons.

It has been found advisable to add one or two new tables to this Report, designed for annual insertion, as well as others which form a special feature of the year's work. Thus, at the instance of the medical officer of the Local Government Board, I have arranged for the yearly publication of Table 23, which sets forth in form convenient for comparison the death-rates from causes of chief importance from a sanitary point of view of each administrative county and county borough. The table showing the adjusted populations and calculated annual deaths from which the standardization factors for each administrative area are calculated is also new to this Report. The object of its insertion is to furnish students of sanitary science with the means of easily obtaining standardized death-rates for any combination of counties or districts in which they may be interested. It is impossible to foresee the groupings which may be required for the purposes of different investigations, but by means of this table the factor required for standardizing the mortality of any required group of areas can be very readily obtained.

Special features of this Report calling for reference here are the continuation of the detailed analysis of causes of death in combination, commenced in 1911, and the tabulation of the births registered in 1911 according to the occupation of the fathers of the legitimate and mothers of the illegitimate infants born. Tabulation of deaths by combinations of causes as certified appeared in the Report for 1911 for all deaths registered in that year and allotted to the first 19 causes of the detailed international list. This year the causes similarly dealt with are those registered in 1912 and allocated to causes Nos. 20-38 of the same list. These causes include tuberculosis and syphilis, the protean manifestations of which, in combination with the other diseases with which they are liable to be complicated, have made the work of tabulation far more intricate than when the acute specific infections were similarly dealt with in 1911; but a mass of information is now available with regard to the forms and complications of these important diseases which there has hitherto been no attempt to obtain on a national scale in this country.

Special interest also attaches at the present time to the records, incomplete as they necessarily are, of mortality from syphilis in view of the investigation now being carried on by the Royal Commission on Venereal Diseases. This disease accordingly has received special attention in this Report, and the interesting results arrived at, particularly with regard to the distribution amongst the various grades of society, of mortality from syphilis and diseases dependent upon it, have been communicated to the Commission.

The tabulation of births registered in 1911 by parents' occupation may be regarded as a belated portion of the Report for that year, in which it will be remembered that infant mortality was similarly classified. When the Report for 1911 was published, however, the census tabulation of occupations was incomplete. It was therefore impossible to prepare tables showing fertility by occupation, and this portion of the work had necessarily to be postponed for inclusion in the present Report. The tables now published are the first to deal with this matter on a national scale in this country. They amply confirm the conclusions already arrived at by students of occupational fertility who have investigated the subject by the aid of less complete data to the effect that fertility varies greatly with social status, being with few exceptions lowest for professional and other middle-class occupations and highest as a rule for those representing unskilled labour. This general result harmonises also with that of the tabulation of fertility by occupations in the Report on the census of Scotland.

I have to convey my thanks to the Registrars-General of Scotland and Ireland, and the various Foreign and Colonial Authorities for the information from which the tables of International Vital Statistics have been compiled, to medical officers of health throughout the country, especially county medical officers of health, for their valuable assistance in securing accurate transfer of deaths from the district of occurrence to that of residence, and to Dr. W. N. Shaw, F.R.S., for the Meteorological Report upon the year 1912.

I have the honour to be,

Sir,

Your obedient Servant,

BERNARD MALLET,

Registrar-General.

General Register Office,
Somerset House,
April, 1914.

REVIEW OF THE VITAL STATISTICS OF THE YEAR 1912.

POPULATION.

The final report on the census of 1911 shows that the total population of England and Wales on April 3rd, 1911, was 36,070,492.

On the assumption of a continuance of increase by geometrical progression at the rate experienced during 1901-1911 the population at the middle of the year 1912 is estimated to have been 36,539,636; and on the further assumption of a continuance in arithmetical progression of the change in the proportion of the sexes experienced between the last two censuses this total is estimated to have been made up of 17,672,985 males and 18,866,651 females.

For parts of the country the method adopted in this Report for the calculation of estimated populations is that described in the Annual Reports for 1907, pages cxxxii-cxxxiv, and for 1910, pages xi and xii.

The factors to be used for the calculation of estimates of populations for the years 1911-1920 are as follows:—

1911	..	...	·02634780	1916	...	...	·56787619
1912	...	...	·13242746	1917	...	...	·67958101
1913	...	...	·23960799	1918	...	...	·79244797
1914	...	...	·34790096	1919	...	...	·90648664
1915	...	...	·45731880	1920	...	...	1·02170833

The population of any district at the middle of any year from 1911 to 1920 is calculated by adding to the population enumerated in 1911 the product of the increase of population in the last intercensal period and the factor for the year in the above series. In the case of a decreasing population the product of the intercensal decrease multiplied by the factor should be deducted from the population enumerated in 1911.

In the case of leap years, when it is desired to correct for the extra day, the mid-year estimate should be increased by $\frac{1}{365}$ th part.

This method of estimation has been employed for all areas, excepting two unimportant cases, as after a somewhat extensive trial of the more elaborate method for important areas referred to in last year's Report as then in contemplation it was deemed inadvisable to adopt the latter at the present time. Estimates for a number of the chief towns in the country were prepared by both methods and submitted to their medical officers of health for criticism in the light of local knowledge. The great majority of the replies favoured the method at present in use, so it has been decided to retain it for the present. After next census the question will again come under review in the light of the returns of population which will then be available.

MARRIAGES.

The marriages in England and Wales during the year 1912 numbered 283,834, corresponding to a rate of 15·5 persons married per 1,000 population at all ages. This rate was 0·3 above the corresponding rate in 1911, and was equal to the average rate in the decade 1901-1910.

The proportion to the total population of persons married during the 75 years (1838-1912) since civil registration of marriages was enforced has ranged between a maximum of 17·9 per 1,000 living in 1853 and a minimum of 14·2 per 1,000 in 1886, the mean annual rate for the whole period being 15·8 per 1,000. (See Table 6, p. 20.)

In view of the changing constitution of the population, however, a better method of measuring the marriage-rate is to eliminate married persons and young children, and to calculate the rate on the unmarried and widowed population aged 15 years and upwards, thus dealing only with that section of the population in which marriages take place. Marriage-rates so calculated are shown for a series of years in Table 6. From this table it appears that, when calculated in this way, the marriage-rate shows a considerable decline in the last 40 years, the rate for the quinquennium 1906-1910 being the lowest recorded in any corresponding period for either sex, whereas the rate per 1,000 persons at all ages was lower in three previous quinquennia. This difference is due largely to the fact that, owing to the fall in the birth-rate, persons over 15 years of age form a larger proportion of the population now than formerly. Hence 1,000 persons of all ages now include more of marriageable age, and a rise in the number who marry in a year is not inconsistent with a fall in the number married out of 1,000 marriageable persons. On the latter basis of reckoning Table 6 shows that a lower marriage-rate than that of 1912 has been recorded in ten previous years for males and eight for females.

TABLE I.—ANNUAL RATES of PERSONS MARRIED per 1,000 of the UNMARRIED and WIDOWED POPULATION AGED 15 YEARS and UPWARDS, in each REGISTRATION COUNTY, 1870-1912.

Registration Counties.	Census Periods.					Increase or Decrease per cent. in each County between 1870-72 and 1910-12.
	1870-72.	1880-82.	1890-92.	1900-02.	1910-12.	
England and Wales	57.2	51.5	49.8	48.7	46.3	-19.1
London	60.9	56.2	52.3	50.3	50.2	-17.6
Surrey	38.3	39.2	37.0	38.0	36.2	- 5.5
Kent	46.1	46.0	42.4	43.5	41.2	-10.6
Sussex	44.5	42.3	38.4	39.0	34.8	-21.8
Hampshire	48.9	48.0	44.7	44.5	41.8	-14.5
Berkshire	47.0	43.4	43.7	43.2	40.8	-13.2
Middlesex	34.8	38.0	37.8	42.5	42.9	+23.3
Hertfordshire	41.0	37.2	38.0	39.3	37.7	- 8.0
Buckinghamshire	47.7	45.7	44.5	47.1	40.1	-15.9
Oxfordshire	46.6	41.4	41.7	41.6	39.8	-14.6
Northamptonshire	58.0	53.0	53.6	49.4	46.2	-20.3
Huntingdonshire	52.1	44.8	44.7	46.0	44.3	-15.0
Bedfordshire	52.3	48.0	43.2	43.8	43.5	-16.8
Cambridgeshire	52.0	41.8	45.3	46.3	45.5	-12.5
Essex	45.9	46.2	48.4	49.3	46.8	+ 2.0
Suffolk	51.8	50.2	46.9	47.0	43.3	-16.4
Norfolk	52.3	50.2	45.9	45.5	43.7	-16.4
Wiltshire	47.4	44.5	44.8	45.0	42.7	- 9.9
Dorsetshire	45.6	42.7	43.1	41.5	38.0	-16.7
Devonshire	50.6	46.7	45.7	43.4	41.1	-18.8
Cornwall	44.6	38.7	39.8	38.4	40.0	-10.3
Somersetshire	45.6	42.2	43.1	40.7	39.8	-12.7
Gloucestershire	58.1	50.9	49.2	47.2	43.0	-26.0
Herefordshire	38.6	35.4	38.3	38.6	37.7	- 2.3
Shropshire	44.9	37.9	40.2	42.0	37.8	-15.8
Staffordshire	71.6	60.0	58.7	55.9	52.6	-26.5
Worcestershire	56.2	47.5	47.0	46.1	44.3	-21.2
Warwickshire	62.9	53.2	56.4	54.7	53.2	-15.4
Leicestershire	61.8	55.1	53.4	51.6	48.9	-20.9
Rutlandshire	43.1	37.0	38.3	37.2	34.3	-20.4
Lincolnshire	53.1	47.9	49.9	50.6	48.7	- 8.3
Nottinghamshire	68.1	64.8	58.4	58.1	52.5	-22.9
Derbyshire	60.0	51.2	54.3	53.5	49.1	-18.2
Cheshire	54.7	46.8	45.5	43.8	42.6	-22.1
Lancashire	66.1	56.8	52.8	50.3	47.5	-28.1
West Riding	66.1	55.2	54.1	52.0	49.7	-24.8
East Riding	63.8	54.9	53.7	50.4	48.4	-24.1
North Riding	50.7	49.7	45.9	47.4	45.1	-11.0
Durham	70.9	62.9	57.6	58.9	55.8	-21.3
Northumberland	64.4	54.1	52.9	51.1	47.6	-26.1
Cumberland	47.6	45.7	42.6	43.7	40.7	-14.5
Westmorland	44.7	39.2	37.7	36.4	36.1	-19.2
Monmouthshire	64.4	55.6	57.5	55.6	49.4	-23.3
Glamorganshire	67.6	60.3	63.3	59.2	52.0	-23.1
Carmarthenshire	53.0	45.6	45.4	46.4	43.5	-17.9
Pembrokeshire	47.0	41.6	42.8	42.8	40.8	-13.2
Cardiganshire	38.1	31.7	31.3	30.9	27.3	-28.3
Brecknockshire	50.5	44.1	47.1	52.3	40.5	-19.8
Radnorshire	43.3	38.1	34.6	40.1	34.4	-20.6
Montgomeryshire	41.6	33.3	37.7	37.2	31.2	-25.0
Flintshire	38.3	36.0	42.1	37.2	42.2	+10.2
Denbighshire	45.7	42.0	46.8	43.9	39.2	-14.2
Merionethshire	44.8	37.6	36.1	38.6	31.0	-30.8
Carnarvonshire	44.0	41.3	39.5	39.0	33.0	-25.0
Anglesey	37.9	36.6	36.1	38.5	33.5	-11.6

A still more precise method of calculating the marriage-rate over an extended period would be to take into account not only the changes in the proportion of marriageable persons in the population, but also the changes in their ages. Taking the period 1870-1872, when the marriage-rate was about at its maximum, as a standard, the standardized* marriage-rate for 1910-1912 shows a fall of 23 per cent., which is practically the same as the fall calculated in last year's report for 1911 by the method used in that and previous reports of modifying the marriage-rate of 1870-1872 to allow for the smaller proportion of marriageable persons in the population at that time. When the comparison was made in this way the relatively large numbers of unstated ages at marriages at the earlier date made it impossible to calculate the marriage-rates at ages at that period except upon the unproved assumption that the unrecorded ages were distributed in the same proportions as the recorded ages in the marriage registers. This difficulty disappears when the earlier period is taken as the standard, as it is the marriage-rates at different ages in 1912, when there were very few unstated ages, which have now to be applied to the standard population. As the marriage-rate for 1910-1912 approximated very nearly to that for 1911 the close agreement in the amount of decline shown by the two methods of calculation indicates that no serious error was introduced by the assumption referred to.

Marriages in Counties.—Table I. shows for the Registration Counties of England and Wales the marriage-rates in the years around the five past censuses. The rates are based on the proportions of persons married to the unmarried and widowed population aged 15 years and upwards. No correction has been made for differences in the age constitution of this population.

Among Registration Counties with populations exceeding 100,000 persons the highest and lowest marriage-rates in the period 1910-1912, in proportion to the marriageable section of the population, were as follows:—

TABLE II.

Registration Counties with the highest Marriage-rates.	Persons Married per 1,000 Marriageable Population.	Registration Counties with the Lowest Marriage-rates.	Persons Married per 1,000 Marriageable Population.
Durham	55.8	Shropshire	37.8
Warwickshire	53.2	Herefordshire	37.7
Staffordshire	52.6	Hertfordshire	37.7
Nottinghamshire	52.5	Surrey	36.2
Glamorganshire	52.0	Sussex	34.8
London	50.2	Carnarvonshire	33.0

The last column of Table I. shows a very wide range of variation in the changes shown in the various counties. This is due mainly to the tendency of those counties with an abnormally high or low relative rate in the period 1870-1872 to assimilate more closely to the general marriage-rate of the whole country in 1910-1912. Thus, Staffordshire, with a rate of 25 per cent. above the general rate in the first period, is only 14 per cent. above the general rate in the last. Nottinghamshire fell from 19 per cent. above to 13 per cent. above, Glamorganshire from 18 per cent. above to 12 per cent. above, Lancashire from 16 per cent. above to 3 per cent. above, and the West Riding from 16 per cent. above to 7 per cent. above. At the other end of the scale Middlesex, 39 per cent. below the general rate in 1870-1872, rose to 7 per cent. below in 1910-1912; Surrey from 33 per cent. below to 22 per cent. below, Flintshire from 33 per cent. below to 9 per cent. below, Herefordshire from 33 per cent. below to 19 per cent. below, and Hertfordshire from 28 per cent. below to 19 per cent. below. On the other hand, Warwickshire which had a rate 10 per cent. above the general rate in 1870-1872 had risen to 15 per cent. above in the period 1910-1912. The London rate is probably affected by the number of marriages of foreigners who come to the metropolis for that purpose, and also by the marriages of other than permanent residents who contract marriage in the fashionable churches.

Marriage-Rates of Bachelors, Spinsters, Widowers, and Widows.—The following table compares the marriage-rates of the single and of the previously married at different groups of ages.

Marriages without statement of age have been distributed to the various age-groups in the proportions shown in the stated ages, as, although it may be that the proportion of unstated ages is higher in the later age-groups, there is no means of estimating

* See page xxxvi.

to what extent. The calculations have been restricted to census periods, in order to avoid errors which might arise from erroneous estimates of sections of the populations for intercensal years, and to the last five census periods only, because of the high proportion of unstated ages at earlier periods. These proportions have gradually declined from about 94 per cent. when civil registration began until in 1912 they amounted to only 0.60 per cent. in the case of husbands and 0.68 in that of wives.

TABLE III.—ENGLAND AND WALES.—AVERAGE ANNUAL MARRIAGE-RATES per 1,000 of UNMARRIED and WIDOWED PERSONS at SIX AGE-GROUPS—1870-2; 1880-2; 1890-2; 1900-2; and 1910-2.

—	Aged 15 years and upwards.*		15—	20—	25—	35—	45—	55 and upwards.
	Rate per 1,000.	Compared with rate in 1870-2 taken as 100.						
<i>Bachelors.</i>								
1870-2 ...	61.7	100.0	6.0	122.4	119.3	43.3	15.3	3.2
1880-2 ...	55.4	89.8	4.6	106.8	112.4	40.5	14.3	3.0
1890-2 ...	53.6	86.9	3.1	94.7	122.4	43.4	15.2	3.5
1900-2 ...	51.2	83.0	2.5	85.9	123.7	44.2	14.6	3.3
1910-2 ...	47.5	77.0	2.2	74.8	120.6	44.4	14.9	3.9
<i>Widowers.</i>								
1870-2 ...	65.8	100.0	11.5	229.0	288.5	181.5	88.3	15.9
1880-2 ...	58.3	88.6	30.6	192.9	246.5	157.8	76.9	16.0
1890-2 ...	55.6	84.5	14.1	153.4	231.7	151.1	74.7	15.5
1900-2 ...	48.8	74.2	—	132.6	201.7	134.1	65.3	13.5
1910-2 ...	43.4	66.0	—	121.6	171.2	117.9	59.4	12.7
<i>Spinsters.</i>								
1870-2 ...	63.1	100.0	26.8	133.7	85.9	30.4	11.9	1.7
1880-2 ...	56.7	89.9	21.5	121.9	80.6	26.3	10.4	1.6
1890-2 ...	53.3	84.5	16.2	112.4	85.7	26.4	10.3	1.7
1900-2 ...	50.5	80.0	12.9	104.9	88.6	25.3	9.1	1.5
1910-2 ...	48.4	76.7	11.2	97.7	91.1	24.4	8.5	1.8
<i>Widows.</i>								
1870-2 ...	21.1	100.0	55.4	170.5	125.5	55.7	20.8	2.6
1880-2 ...	19.2	91.0	56.6	155.3	114.5	50.2	18.6	2.6
1890-2 ...	18.9	89.6	49.3	150.4	114.3	50.3	17.8	2.4
1900-2 ...	18.2	86.3	54.9	140.7	115.9	48.9	15.6	2.1
1910-2 ...	18.1	85.8	30.0	151.2	114.1	48.9	15.6	2.1

* The rates in each period are based on the age-constitution of these particular sections of the population as enumerated at the census of 1871 by the direct method of standardization. See page xxxvi.

The fall in the marriage rate in the period under review has been greatest amongst widowers and least amongst widows. The number of widows is always much greater than that of widowers, because men marry later in life than women and are shorter lived, and because the proportion of widows who re-marry is much lower than that of widowers.

It will be noted that amongst bachelors the fall in the rate is confined to those under 25, where it has been heavy and continuous, while from the age of 25 upwards there has been little fluctuation, indeed, the rates are now slightly higher than they were 40 years ago. Amongst spinsters there is a fall at every age-group up to 55 except that of ages 25-35, in which after a drop between the 70's and 80's there has since been a steady and continuous rise. Amongst widowers the fall has been practically continuous at every age group. The apparent anomaly that the rates for widows at all ages are uniformly very much lower than those for spinsters (and the rates for widowers in recent years somewhat below those for bachelors), although at each separate age-period they are higher, is explained by the fact that the higher rates for the single of both sexes relate to age-periods at which their numbers are comparatively large, while the higher rates for the widowed relate to age-periods at which their numbers are comparatively small.

Table IV. gives a general view of the changes in the proportions of first marriages and re-marriages since the year 1876; it will be observed that the proportion of re-marriages shows continuous decrease.

TABLE IV.—ENGLAND AND WALES.—PROPORTIONS of FIRST MARRIAGES and RE-MARRIAGES in 1,000 MARRIAGES.

Period.	Men.		Women.		Bachelors who married.		Widowers who married.	
	Bachelors.	Widowers.	Spinsters.	Widows.	Spinsters.	Widows.	Spinsters.	Widows.
1876-80 ...	864	136	902	98	820	44	82	54
1881-85 ...	874	126	911	89	834	40	77	49
1886-90 ...	881	119	917	83	844	37	73	46
1891-95 ...	887	113	921	79	851	36	70	43
1896-1900 ...	904	96	931	69	871	33	60	36
1901-05 ...	911	89	933	67	877	34	56	33
1906-10 ...	916	84	938	62	884	32	54	30
1911 ...	918	82	939	61	887	31	52	30
1912 ...	918	82	938	62	886	32	52	30

Table V. shows the proportions by age of bachelors, spinsters, widowers, and widows who married during the period 1886-1912.

TABLE V.—ENGLAND AND WALES, 1886-1912.—MARRIAGES of BACHELORS, SPINSTERS, WIDOWERS and WIDOWS of VARIOUS AGES per 1,000 MARRIAGES at ALL AGES.

Period.	All Ages.	Under 18 Years.	Age											55 and upwards.	Age not stated.
			18—	19—	20—	21—	25—	30—	35—	40—	45—	50—			
<i>Bachelors.</i>															
1886-1890	1,000	0	4	20	47	424	309	96	33	13	6	3	2	43	
1891-1895	1,000	0	3	17	43	415	333	108	37	14	6	3	2	19	
1896-1900	1,000	0	3	15	39	411	346	110	39	15	6	3	2	11	
1901-1905	1,000	0	3	13	35	390	360	122	41	16	7	3	2	8	
1906-1910	1,000	0	3	11	30	370	372	132	46	17	8	3	2	6	
1911 ...	1,000	0	3	11	28	350	380	139	50	19	9	3	3	5	
1912 ...	1,000	0	3	11	28	347	378	140	52	20	9	4	3	5	
<i>Spinsters.</i>															
1886-1890	1,000	9	37	72	97	417	219	62	23	10	5	2	1	46	
1891-1895	1,000	7	31	66	94	425	241	70	25	11	5	2	1	22	
1896-1900	1,000	6	27	59	89	434	253	74	26	11	5	2	1	13	
1901-1905	1,000	5	23	53	82	428	272	79	28	12	5	2	1	10	
1906-1910	1,000	5	21	48	75	420	284	87	30	12	6	2	2	8	
1911 ...	1,000	5	21	46	70	404	298	93	32	13	7	3	2	6	
1912 ...	1,000	5	22	47	71	399	295	95	34	14	7	3	2	6	
<i>Widowers.</i>															
1886-1890	1,000	0	13	81	133	151	139	120	94	70	53	27	15	104	
1891-1895	1,000	0	12	76	132	153	148	126	106	74	55	29	18	71	
1896-1900	1,000	0	10	73	131	158	150	136	109	84	56	30	19	44	
1901-1905	1,000	0	10	68	130	155	152	136	116	83	62	32	20	36	
1906-1910	1,000	0	8	61	123	153	152	141	119	90	62	37	24	30	
1911 ...	1,000	0	7	56	115	155	146	144	119	93	68	40	33	24	
1912 ...	1,000	0	7	55	108	150	145	142	125	99	68	45	33	23	
<i>Widows.</i>															
1886-1890	1,000	1	30	119	164	173	145	117	73	46	26	10	3	93	
1891-1895	1,000	1	27	115	170	177	157	119	78	47	29	10	4	65	
1896-1900	1,000	1	26	113	175	188	157	127	81	50	28	11	3	40	
1901-1905	1,000	1	28	122	182	190	158	118	78	47	29	11	4	32	
1906-1910	1,000	1	23	106	177	192	160	129	82	52	30	14	6	28	
1911 ...	1,000	0	22	102	164	192	166	135	82	51	32	17	13	21	
1912 ...	1,000	1	19	95	166	195	166	134	87	54	34	17	12	20	

The Divorced.—The number of persons divorced in 1912 was 1,174, the number in 1911 being 1,160. Although showing this slight increase over the previous year the figure for 1912 is well below the average of the five years immediately preceding.

As will be seen from Table VI., the marriages of persons described as divorced show a considerable increase on those of previous years. No valid comparison can, however, be instituted between the number of persons divorced and the number of divorced persons married in any given year, as the figures are not directly related. A very large percentage of the divorced who contract marriage in England have been divorced by some foreign tribunal and resort to this country either to avoid local publicity or to avail themselves of the greater facilities for contracting marriage under English law; while on the other hand it is probable that in some cases persons divorced in this country are not so described in the marriage register.

TABLE VI.—ENGLAND AND WALES.—AVERAGE ANNUAL NUMBER OF DIVORCED PERSONS WHO RE-MARRIED, 1876-1912.

Period.	Average Annual Number of Divorced Persons who re-married.							
	Total.	Men.	Women.	Divorced men and spinsters.	Divorced men and widows.	Divorced men and divorced women.	Divorced women and bachelors.	Divorced women and widows.
1876-80	104	56	48	42	12	2	31	15
1881-85	128	68	60	53	12	3	42	15
1886-90	169	80	89	65	11	4	65	20
1891-95	214	110	104	89	15	6	75	23
1896-1900	345	172	173	138	24	10	126	37
1901-05	509	262	247	205	38	19	181	47
1906-10	693	356	337	276	53	27	253	57
1911	702	365	337	300	39	26	265	46
1912	782	402	380	321	51	30	280	70

Marriages of Minors.—The proportion of marriages under age was at its maximum in the year 1874 both for males and females, since when the ratio of such marriages to total marriages has declined continuously up to 1911. In 1912 the ratio for females showed a slight increase.* (See Tables VII. and 10.)

TABLE VII.—ENGLAND AND WALES.—MINORS MARRIED per 1,000 MARRIAGES at ALL AGES.

		Husbands.	Wives.			Husbands.	Wives.
1876-80		77.8	217.0	1901-05		46.3	153.1
1881-85		73.0	215.0	1906-10		40.3	139.4
1886-90		63.2	200.2				
1891-95		56.2	182.6	1911... ..		39.3	133.3
1896-1900		51.2	168.0	1912... ..		39.2	135.4

The proportions per 1,000 marriages of husbands and of wives marrying under age in 1912 and in the preceding decennium in the respective registration counties are shown in Table 12, page 25.

The highest proportions of marriages of minors were recorded in the mining and manufacturing counties and the lowest in the agricultural counties.

Marriages of minors are proportionately more common in Scotland but much less common in Ireland than in England and Wales.

Mean Age at Marriage.—Although the mean age at marriage is for many purposes a convenient summary of the statements as to age, it must be borne in mind that it forms only a very imperfect measure of changes in the age at which marriage takes place.

The great reduction that has taken place in the disturbing factor of unstated ages, has rendered it possible to measure with approximate accuracy for a series of recent years

* The decreasing tendency to early marriage is more accurately indicated by the proportion of men and women who marry at the earlier ages to the numbers living at those ages. See Table III.

the mean age at marriage, based on the returns in which age is recorded, as is done in Tables VIII. and IX. These tables show that the mean age at marriage has steadily increased during the whole period both for bachelors and for spinsters, and a similar tendency, with slight fluctuations, is noticeable in the case of widowers. In the case of widows the mean age has shown a progressive increase since 1902.

TABLE VIII.—ENGLAND AND WALES.—MEAN AGES OF MEN at MARRIAGE 1896-1912.

Year.	All Bridegrooms.*	All Bachelor Bridegrooms.	All Widower Bridegrooms.	Bachelors with Spinsters.	Bachelors with Widows.	Widowers with Spinsters.	Widowers with Widows.
1896	28.43	26.59	44.49	26.30	33.93	41.38	49.60
1897	28.38	26.63	44.53	26.35	34.10	41.43	49.73
1898	28.34	26.62	44.70	26.34	33.94	41.82	49.69
1899	28.34	26.65	44.90	26.37	34.29	41.87	49.81
1900	28.41	26.68	45.02	26.39	34.35	42.19	49.75
1901	28.55	26.76	45.18	26.48	33.94	42.43	49.69
1902	28.53	26.88	44.96	26.60	33.94	42.11	49.81
1903	28.49	26.91	44.94	26.63	34.24	42.16	49.72
1904	28.46	26.93	45.03	26.66	34.06	42.25	49.98
1905	28.56	27.01	45.27	26.74	34.26	42.47	50.18
1906	28.56	27.03	45.37	26.76	34.39	42.59	50.25
1907	28.66	27.10	45.62	26.84	34.58	42.85	50.56
1908	28.78	27.19	45.69	26.92	34.57	42.92	50.66
1909	28.88	27.29	45.93	27.02	35.00	43.23	50.85
1910	28.92	27.36	45.93	27.09	34.96	43.14	50.89
1911	29.03	27.46	46.42	27.19	35.19	43.49	51.46
1912	29.12	27.56	46.77	27.27	35.75	43.96	51.67

TABLE IX.—ENGLAND AND WALES.—MEAN AGES OF WOMEN at MARRIAGE 1896-1912.

Year.	All Brides.*	All Spinster Brides.	All Widower Brides.	Spinsters with Bachelors.	Spinsters with Widowers.	Widows with Bachelors.	Widows with Widowers.
1896	26.21	25.08	40.58	24.54	32.43	35.69	44.81
1897	26.18	25.10	40.74	24.59	32.31	35.95	45.00
1898	26.18	25.14	40.59	24.62	32.68	35.85	45.04
1899	26.21	25.16	40.83	24.65	32.83	36.12	45.16
1900	26.29	25.23	40.74	24.71	32.97	36.19	44.95
1901	26.39	25.31	40.43	24.77	33.04	35.65	44.96
1902	26.37	25.36	40.25	24.86	32.86	35.62	44.95
1903	26.35	25.37	40.27	24.89	32.93	35.69	45.01
1904	26.32	25.37	40.35	24.90	33.03	35.82	45.22
1905	26.38	25.43	40.53	24.96	33.08	36.02	45.29
1906	26.41	25.46	40.79	24.99	33.30	36.27	45.53
1907	26.49	25.54	40.91	25.06	33.43	36.32	45.68
1908	26.61	25.63	41.02	25.13	33.71	36.43	45.86
1909	26.69	25.73	41.27	25.22	33.85	36.71	45.98
1910	26.75	25.79	41.33	25.30	33.85	36.83	46.07
1911	26.80	25.81	41.74	25.32	34.13	37.01	46.63
1912	26.84	25.85	41.89	25.36	34.25	37.44	46.69

* The apparent anomaly that the mean age of all bridegrooms shows a smaller increase than the mean age of either bachelor or widower bridegrooms is due to the fact that in the earlier years the total number of bridegrooms included a larger proportion of widowers, and this, of course, had the effect of raising the mean age of the total (see Table IV.). A similar explanation applies to the mean ages of wives.

The ages of persons married in 1911 and 1912 have been separately abstracted for each year of age up to 25, and these numbers have been used in calculating the mean age at marriage in the above tables. For years prior to 1911 marriages at ages between 21 and 25 formed a single group and the mean age of this group was taken as 23 years.

Signature in Marriage Register.—The proportion of husbands who failed at the time of marriage to sign their names in the marriage register has gradually fallen from 32.6 per cent. in 1841-45 to 0.9 in 1912, and of wives from 48.9 to 1.1. In the Home and the agricultural counties the proportion of illiterate men is higher, and in the mining and industrial counties lower, than that of women.

Buildings in which Marriages may be Solemnized.—At the end of the year 1912 the numbers of churches or chapels of the Established Church, and of registered buildings in which marriages could be legally solemnized were as follows :—

Established Church	15,907
All other Religious Denominations	16,252
Total... ..	32,159

The increase upon the numbers at the end of the previous year was : Established Church 43, other religious denominations 229. The number of these buildings belonging to the various denominations is shown for each registration county in Table VIII., (p. 21).

By the Acts 15 and 16 Vict. c. 36, and 18 and 19 Vict., c. 81, it was enacted that all places of religious worship not being churches or chapels of the Established Church should, if the congregations desired, but not otherwise, be certified to the Registrar General, certification for public worship being a necessary preliminary to the registration of a building for the solemnization of marriages. The number of places of meeting for religious worship on the official register on 31st December, 1912, and the number of buildings registered for the solemnization of marriages are shown in the following table :—

TABLE X.

Denomination.	Buildings certified to the Registrar-General as Meeting-places for Religious Worship.	Buildings registered for the Solemnization of Marriages.*	Denomination.	Buildings certified to the Registrar-General as Meeting-places for Religious Worship.	Buildings registered for the Solemnization of Marriages.*
Roman Catholics	1,415	1,351	New Jerusalem Church... ..	54	57
Wesleyan Methodists	7,478	3,755	Catholic Apostolic Church	71	49
Congregationalists	3,265	2,928	Countess of Huntingdon's Connexion.	47	44
Baptists	3,052	2,638	Salvation Army	1,165	48
Primitive Methodists	4,266	1,691	Society of Friends	425	—†
United Methodist Church	1,963	1,167	Jews	217	—†
Calvinistic Methodists	1,213	904	Other Denominations	2,893	984
Presbyterians	434	440			
Unitarians	182	196			
			All Denominations	28,140	16,252

* Of these buildings nearly 1,000 were certified before 1852, as Places of Meeting for Religious Worship, to some other Authority than the Registrar-General and therefore are not included in the preceding column.
 † It is not necessary for buildings to be registered for the solemnization of Quaker or Jewish marriages. Under section 81 of the Births, Deaths, and Marriages Registration Act (1886) Registering Officers of the Society of Friends and Secretaries of Jewish Synagogues who have been certified to the Registrar-General record the marriages in each case.

The Marriage Act, 1898, provided that under specified conditions marriages might be solemnized in registered buildings in the presence of duly authorised persons without the attendance of a Registrar of Marriages. The governing bodies of some of the registered buildings have availed themselves of this provision, and at the end of the year 1912 the number of such buildings which had been brought under the operation of the Act, and so remained, was 3,534 out of the total of 16,252; the numbers of these buildings and the denominations to which they belonged, were as follows :—

- 1,535 Wesleyan Methodists.
- 548 Congregationalists.
- 480 Primitive Methodists.
- 356 Baptists.
- 318 United Methodist Church.
- 93 Calvinistic Methodists.
- 204 Other Denominations, and Unsectarian.
- 3,534 All Denominations.**

These 3,534 registered buildings were distributed among 515 of the registration districts. In the remaining 120 registration districts there was no registered building under the operation of the Act.

Manner of Solemnization.—Table 9, p. 22, shows that almost four-fifths of the marriages contracted in England and Wales during 1912 were solemnized with religious ceremonial. This proportion, which had been steadily decreasing since the commencement of civil registration owing to the growing favour of purely civil marriage in District Register Offices, showed a slight increase in 1912 over 1911, but was lower than in any other previous year. The proportion of Established Church marriages showed a similar increase, and that of civil marriages a proportional decrease.

The proportion of marriages solemnized under the provisions of the Marriage Act, 1898, has steadily increased in each successive year from 11 per 1,000 marriages in 1899 to 48 in 1912.

Of the 1,904 Jewish marriages contracted in the year 1912 in England and Wales, 1,454, or 76 per cent., were registered in London, 146, or 8 per cent., in the City of Manchester, and 89, or 5 per cent., in the City of Leeds. Of the Jewish marriages in London, no fewer than 1,145, or 79 per cent., were registered in a group of three registration districts—London City, Whitechapel, and Mile End Old Town.

Table 11, p. 24, gives particulars as to the forms under which marriages have been contracted in the various registration counties during 1912.

BIRTHS.

The births registered in the year 1912 numbered 872,737; of these 835,209 were legitimate, and 37,528 were illegitimate.

In proportion to the total population of both sexes and all ages, the total births were equal to a rate of 23·8 per 1,000 living; this rate was 0·6 per 1,000 less than that recorded in 1911, and was no less than 3·4 per 1,000 below the average of the low rates in the ten years 1901–1910.

In the year 1876 the birth-rate in this country attained the highest point on record, viz., 36·3 per 1,000 living, since which date the ratio has, with a few insignificant exceptions, fallen year by year.

The birth-rate, stated in terms of total population (crude birth-rate), must obviously vary considerably with the proportion of females of conceptive ages in the population, and with the proportion of these married.

The following statement shows the changes in these proportions and in the age constitution of the married female population at the last five censuses :—

TABLE XI.—ENGLAND AND WALES.

Census Years.	Proportion per cent. of Women aged 15–45 years in the Total Population of both sexes and all ages.	Proportion per cent. of Married Women in the Female Population aged 15–45 years.	Of the Married Women aged 15–45 years the proportion per cent. at four groups of ages.				Persons Married to 1,000 Marriageable Persons* in the Population.
			15–20.	20–25.	25–35.	35–45.	
1871	23·1	49·6	1·3	13·9	45·5	39·3	56·9
1881	23·1	49·1	1·1	13·7	45·6	39·6	51·1
1891	23·8	47·1	0·9	12·8	46·0	40·3	49·8
1901	25·0	46·8	0·7	11·8	46·8	40·7	48·6
1911	24·9	47·7	0·5	9·4	46·0	44·1	46·2

* i.e.—unmarried and widowed persons over 15 years of age: see p. ix.

Perhaps the most remarkable features in this table are the fall in the proportion of marriages to marriageable persons and the evidence of postponement of marriage by women. The proportion of women of fertile ages who are married was higher in 1911 than in 1901, but the proportions of these married women had fallen at the three earlier out of the four age-periods dealt with, a change resulting from the postponement of marriage shown in Table III.

When the extent to which fertility diminishes with advancing age is borne in mind, it is seen that this change in itself must have had an appreciable effect in diminishing the birth-rate, but one which is not recognised in any form of comparative statement of fertility employed in this Report.

TABLE XII.—ENGLAND AND WALES.—BIRTH-RATES AND FERTILITY, 1876-1912.

Period.	(a.)		(b.)		(c.)		(d.)	
	Birth-rate calculated on Total Population at All Ages.		Fertility calculated on the Female Population aged 15-45 years.		Legitimate Fertility calculated on the Married Female Population aged 15-45 years.		Illegitimate Fertility calculated on the Unmarried and Widowed Female Population aged 15-45 years.	
	Rate per 1,000.	Compared with rate in 1876-80 taken as 100.	Rate per 1,000.	Compared with rate in 1876-80 taken as 100.	Rate per 1,000.	Compared with rate in 1876-80 taken as 100.	Rate per 1,000.	Compared with rate in 1876-80 taken as 100.
1876-1880 ...	35.3	100.0	153.3	100.0	296.3	100.0	14.4	100.0
1881-1885 ...	33.5	94.9	144.3	94.1	282.4	95.3	13.5	93.8
1886-1890 ...	31.4	89.0	133.4	87.0	267.1	90.1	11.8	81.9
1891-1895 ...	30.5	86.4	126.8	82.7	258.3	87.2	10.1	70.1
1896-1900 ...	29.3	83.0	118.8	77.5	242.9	82.0	9.2	63.9
1901-1905 ...	28.2	79.9	112.9	73.6	230.5	77.8	8.4	58.3
1906-1910 ...	26.3	74.5	105.3	68.7	212.9	71.9	8.1	56.3
1876 ...	36.3	102.8	157.5	102.7	304.1	102.6	14.6	101.4
1877 ...	36.0	102.0	155.9	101.7	301.1	101.6	14.6	101.4
1878 ...	35.6	100.8	154.5	100.8	298.8	100.8	14.4	100.0
1879 ...	34.7	98.3	150.5	98.2	291.1	98.2	14.2	98.6
1880 ...	34.2	96.9	148.3	96.7	287.0	96.9	14.1	97.9
1881 ...	33.9	96.0	147.0	95.9	284.9	96.2	14.1	97.9
1882 ...	33.8	95.8	145.8	95.1	283.9	95.8	13.8	95.8
1883 ...	33.5	94.9	144.1	94.0	281.9	95.1	13.4	93.1
1884 ...	33.6	95.2	144.2	94.1	283.7	95.7	13.2	91.7
1885 ...	32.9	93.2	140.7	91.8	277.6	93.7	13.0	90.3
1886 ...	32.8	92.9	140.2	91.5	278.0	93.8	12.8	88.9
1887 ...	31.9	90.4	135.5	88.4	269.9	91.1	12.4	86.1
1888 ...	31.2	88.4	132.3	86.3	265.0	89.4	11.7	81.3
1889 ...	31.1	88.1	131.7	85.9	265.1	89.5	11.5	79.9
1890 ...	30.2	85.6	127.6	83.2	258.2	87.1	10.7	74.3
1891 ...	31.4	89.0	132.1	86.2	268.8	90.7	10.6	73.6
1892 ...	30.4	86.1	127.3	83.0	259.3	87.5	10.1	70.1
1893 ...	30.7	87.0	127.9	83.4	260.4	87.9	10.3	71.5
1894 ...	29.6	83.9	122.4	79.8	249.4	84.2	9.9	68.8
1895 ...	30.3	85.8	124.8	81.4	254.5	85.9	9.9	68.8
1896 ...	29.6	83.9	121.5	79.3	247.8	83.6	9.7	67.4
1897 ...	29.6	83.9	120.7	78.7	246.4	83.2	9.5	66.0
1898 ...	29.3	83.0	118.9	77.6	243.0	82.0	9.3	64.6
1899 ...	29.1	82.4	117.7	76.8	241.0	81.3	8.9	61.8
1900 ...	28.7	81.3	115.6	75.4	236.8	79.9	8.6	59.7
1901 ...	28.5	80.7	114.2	74.5	234.2	79.0	8.4	58.3
1902 ...	28.5	80.7	114.4	74.6	234.1	79.0	8.4	58.3
1903 ...	28.5	80.7	114.1	74.4	233.1	78.7	8.5	59.0
1904 ...	28.0	79.3	112.3	73.3	228.8	77.2	8.5	59.0
1905 ...	27.3	77.3	109.6	71.5	222.8	75.2	8.3	57.6
1906 ...	27.2	77.1	109.2	71.2	221.6	74.8	8.3	57.6
1907 ...	26.5	75.1	106.1	69.2	215.1	72.6	7.9	54.9
1908 ...	26.7	75.6	107.3	70.0	217.0	73.2	8.2	56.9
1909 ...	25.8	73.1	103.6	67.6	208.8	70.5	8.1	56.3
1910 ...	25.1	71.1	100.6	65.6	202.5	68.3	7.8	54.2
1911 ...	24.4	69.1	97.8	63.8	196.2	66.2	8.0	55.6
1912 ...	23.8	67.4	95.6	62.4	191.8	64.7	7.9	54.9

Note.—In the absence of precise information as to the changes in the number and constitution of the population from year to year, the estimates of total population at all ages are calculated by geometrical progression, on the assumption that the rate of increase in each intercensal period was maintained regularly throughout the period; the estimates for the several sections of the population are based on the further assumption that the proportion which each section bore to the total population changed uniformly during each intercensal period, but that it has remained stationary as regards age and marital condition since 1911. In view of the necessity of these, or similar assumptions, the figures for intercensal years are inevitably less accurate than those for years in which censuses were taken.

The crude birth-rate, or ratio of births registered to population at all ages, is the appropriate form of statement when the object in view is to record the net result of the various factors governing reproduction—proportionate number of potential mothers, number of these married, age, and fertility in relation to age, of married and single women, &c. It sums up the results of all the influences governing the rate at which a community is reproducing itself, and is therefore, in conjunction with the corresponding form of mortality statement, the crude death-rate, the appropriate means of measuring natural increase.

Birth-rates, however, are often studied for the sake of the light they throw upon the fertility of communities, and for this purpose also the crude birth-rate is the form of statement ordinarily employed; in fact, none other is as a rule available. But as the fertility of potential mothers is only one of the several factors mentioned above as governing the rate of reproduction in a community, it follows that the crude birth-rate is an imperfect measure of the community's fertility, *i.e.*, of its rate of reproduction in proportion to opportunity for reproduction.

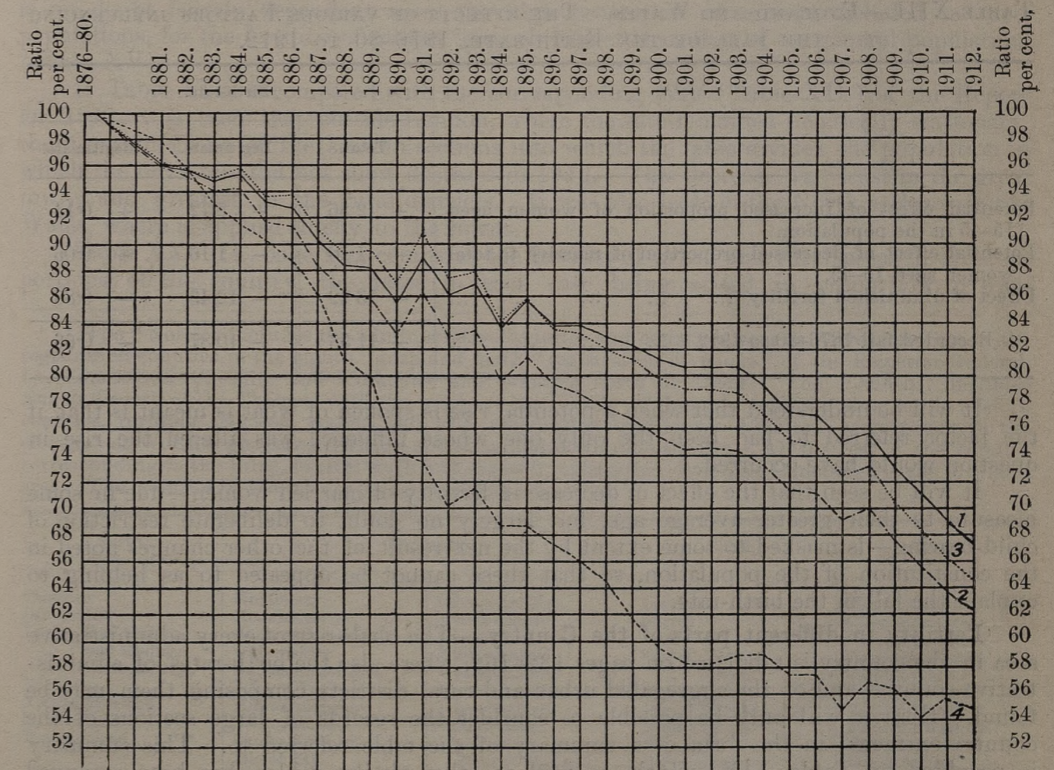
In Table XII. the results are shown of calculating the following proportions:—

- (a) Of total births to the total population of both sexes and all ages;
- (b) Of total births to the female population aged 15-45 years;
- (c) Of legitimate births to the married female population aged 15-45 years; and
- (d) Of illegitimate births to the unmarried and widowed female population aged 15-45 years.

These calculations have also been illustrated in the accompanying diagram, which affords a ready means of gauging the fall in the birth-rate since the decline set in.

DIAGRAM I.—ENGLAND AND WALES.—BIRTH-RATES, 1881-1912. RATIO per cent. of the RATE in each YEAR to the MEAN RATE in 1876-80.

- (1) Birth-rate on total population at all ages.
- (2) Fertility on female population aged 15-45 years.
- (3) Legitimate fertility on married women aged 15-45 years.
- (4) Illegitimate fertility on unmarried and widowed women aged 15-45 years.



As already stated, the birth-rate in England and Wales attained the highest point on record in the year 1876; and for the purpose of measuring the decrease that has since

occurred, the mean annual rate in the quinquennial period 1876-80 has been taken as a standard. Calculated on the total population the fall in the birth-rate in the period under review amounted to 33 per cent.; the fall in the proportion of births to the number of women of child-bearing ages amounted to 38 per cent.; while the fertility of married women, *i.e.*, the ratio of legitimate births to wives of conceptive ages, showed a decrease of 35 per cent.

Put in another way, if the fertility of married women in proportion to their numbers (calculated on the assumptions stated in the footnote to Table XII.) had been as high in 1912 as in 1876-80 the legitimate births would have numbered 1,290,480 instead of the 835,209 actually recorded, giving a legitimate birth-rate of 35.2, or 12.4 in excess of that shown in Table 6.

But if the population in 1912 had not only shown the same fertility for wives aged 15-45, but had contained them in the same proportion as that of 1876-80, the resulting birth-rate would of course have been the same as in 1876-80, namely, 33.67. Therefore the proportionate increase in wives aged 15-45 in the 1912 population is sufficient to account for a rise of 1.56 in the legitimate birth-rate.

The fall in the legitimate birth-rate since 1876-80 is 10.87, therefore this net fall must be made up of a potential rise of 1.56 due to increased proportion of wives aged 15-45, and a fall of 12.43 due to diminished fertility of wives from whatever cause.

The fall due to decrease of illegitimacy is 0.66, making up the fall of 11.53 in the total birth-rate. The fall in the illegitimate rate is compounded similarly to that in the legitimate rate of a potential rise due to (1) increased proportion of unmarried and widowed women aged 15 to 45 years, and a fall due to (2) their diminished fertility. Had the latter remained as in 1876-80, 68,598 births would have resulted, giving an illegitimate birth-rate of 1.87, or 0.86 more than that actually recorded. This figure then represents the effect of (2), so the difference between it and 0.66, the actual fall in illegitimate birth-rate, must represent the potential rise, 0.20, due to (1).

The effects of the increased proportions of wives and of spinsters, &c. in the population may be further analysed into the separate effects of the larger proportion of women aged 15-45, and of the smaller proportion of these women now married. This is done in the subjoined Table:—

TABLE XIII.—ENGLAND AND WALES. THE EFFECTS OF VARIOUS FACTORS INFLUENCING THE FALL OF THE BIRTH-RATE, 1876-80 TO 1912.

	Birth-rate.		
	Total.	Legitimate.	Illegitimate.
Potential effect of increased proportion of women aged 15-45 in the population.	+ 2.86	+ 2.72	+ 0.14
Potential effect of decreased proportion of married to total women aged 15-45.	- 1.10	- 1.16	+ 0.06
Effect of diminished fertility	- 13.29	- 12.43	- 0.86
Recorded fall 1876-80 to 1912	- 11.53	- 10.87	- 0.66

It will be understood that when a potential rise is spoken of what is meant is that if the factor referred to had been the only one whose influence was altered the rise in question would have occurred.

It will be seen that the effect of decrease in fertility of married women—due in some measure to their greater average age, but largely no doubt to deliberate restriction of child-bearing—is masked to some extent by the net result of the other changes noted in the constitution of the population, so that these cannot be appealed to as helping to explain the fall in the birth-rate.

Fertility in different parts of the Country.—The birth-rate of every administrative area in the country is tabulated on pages 132-162, where also the birth-rates of administrative counties and of the aggregated urban and rural districts composing them may be found. Here it will only be possible to consider the records of large sections of the country extracted in the form of a summary of the table referred to. This summary is provided by Table XIV., which, as well as other similar tables, has been arranged so as to present the facts dealt with as far as possible in comparable form. The geographical divisions of the country dealt with in the table contain different proportions of population in large towns, small towns and rural areas, and unless allowance

were made for this fact comparison between them in regard to many matters might be misleading. Each of them is therefore sub-divided into the sum of county boroughs, of other urban districts, and of rural districts contained in it, and by this means comparisons can be made with a fair degree of safety between populations living under approximately similar conditions of town or country life. At the same time the effect of urbanization can be studied in the column relating to England and Wales as a whole, where it is seen that the birth-rate is highest in the county boroughs and lowest in the rural districts. The limits of the four geographical divisions dealt with are indicated in a footnote* and their populations will be found in Table 2.

TABLE XIV.—BIRTHS PER THOUSAND TOTAL POPULATION, 1912.

	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	24.7	—	24.7
County boroughs	25.8	25.4	20.9	26.9	25
Other urban districts	24.4	23.5	19.8	28.8	23.6
Rural districts... ..	24.8	21.7	19.5	24.6	22.1
All areas	25.2	23.6	22.0	27.0	23.8

The highest birth-rates recorded in Table XIV. are those of Wales, and next to them of the North of England, while those of the South are much the lowest. Moreover, if it were not for the inclusion of London in the South the rate for this portion of the country as a whole would fall short of those recorded elsewhere to a considerably greater extent than appears in the table. These differences depend upon real differences in fertility, for when allowance is made for variation in the proportion of women and of married women of fertile age, they are still apparent, though the southern deficit is less marked in a comparison of legitimate births in proportion to married women. (See Table XXVIII. p. xli.)

The high position of Wales and of the rural districts of the North in Table XIV. is no doubt largely dependent upon the high proportion of miners included in their populations, for the fertility of miners is much higher than that of the general population. (Table XV.)

If Table XIV. is compared with the corresponding table (Table XII.) of the Report for 1911 it is seen that outside London, where the rate remained practically stationary, there was not one of the sixteen sections into which the table divides the population in which the birth-rate did not show decrease in 1912. This decrease was least in the great towns and greatest in the rural districts. It was also least in the North and greatest in Wales, where it applied chiefly to the towns.

Table XXVIII., page xli., compares the fertility of urban and rural areas in different portions of the country, the rates in each case being stated in proportion to total

* The "North" includes the administrative counties and county boroughs corresponding to the registration counties in the eighth, ninth and tenth "registration divisions" of the Registrar-General, *i.e.*, Lancashire, Cheshire and Yorkshire and counties north of them. The "South" includes England south of the Thames, with the whole of the County of London and the five south-western counties, forming the first, second and fifth registration divisions. "Wales" corresponds to the eleventh or Welsh registration division and so includes Monmouthshire. All the rest of the country corresponding to the third, fourth, sixth and seventh registration divisions, is included in the Midland area. The counties in the four areas are as follows:—

North.	Midlands.	South.	Wales.
Cheshire.	Middlesex.	Gloucestershire.	London.
Lancashire.	Hertfordshire.	Herefordshire.	Surrey.
Yorks, West Riding.	Buckinghamshire.	Shropshire.	Kent.
" East Riding.	Oxfordshire.	Staffordshire.	Sussex, East.
" North Riding.	Northamptonshire.	Worcestershire.	" West.
Durham.	Soke of Peterborough.	Warwickshire.	Southampton.
Northumberland.	Huntingdonshire.	Leicestershire.	Isle of Wight.
Cumberland.	Bedfordshire.	Rutlandshire.	Berkshire.
Westmorland.	Cambridgeshire.	Lincolnshire.	Wiltshire.
	Isle of Ely.	Parts of Holland.	Dorsetshire.
	Essex.	" Kesteven.	Devonshire.
	Suffolk, East.	" Lindsey.	Cornwall.
	" West.	Nottinghamshire.	Somersetshire.
	Norfolk.	Derbyshire.	

population, to total females of conceptive ages, and to married females of conceptive ages. It shows that the low position of the rural districts in the last column of Table XIV. is completely changed by correction for proportion either of total or of married women, for their fertility then ranks higher than that of any of the urban sections. This difference would be still more marked if the age constitution in the various groups of areas were identical. The rural districts, however, are at a disadvantage in this respect, because their proportion of married women at the younger and more fertile portions of the child-bearing period is lower than that of the country at large, in consequence of the migration of young persons from rural to industrial areas. In all three divisions of Table XXVIII. the county boroughs make a better showing as regards births than the smaller urban areas, so the relation of fertility to urbanization at the present time is not a simple one.

When comparison is made between different parts of the country Wales comes first, followed in order by the North, Midlands and South, whatever measure of fertility be employed. The highest rates are yielded by the small towns of Wales; and the lowest by the South of England. In all forms of the comparison London takes a higher position than the remainder of the South.

Further reference is made to this subject on pages xli. and xlii., where the combined effects of fertility and infant and child mortality are discussed.

Fertility in relation to occupation.—The completion of the census tabulation of occupations renders it possible to include in this Report tables showing the numbers of children born during 1911 (as stated in Tables 28A to 28D of the Report for 1911) in relation to the numbers of the parents engaged in the various occupations. These fertility rates will be found in Tables XV.—XVIII. Legitimate births are necessarily stated in terms of the numbers of possible fathers, and illegitimate of possible mothers. In many cases, as indicated in the notes to Table XVI., there is reason to believe that the fertility of the single occupational groups shown in this table is misleading, owing to certain characteristic differences in the return of occupations at the census and in the birth registers. As there is on the whole more precision of statement at the census, the numbers tabulated to such indefinite headings as "general labourer" are relatively greater in the case of births than of population, and the fertility of such occupations is correspondingly overstated, while on the other hand the fertility of labourers attached to definite occupations is correspondingly reduced, in some cases, *e.g.*, that of navvies (XII. 2 (2)), to a very low level. This difficulty has been overcome as far as possible by grouping together, in Table XVII., those headings which experience shows to be liable to confusion entailing overstatement of the fertility of some of them and corresponding understatement of that of others. Thus "domestic" motor car drivers are returned in Table XVI. as comparatively infertile, and non-domestic motor car drivers as very fertile. Evidently in the birth registers the information that the employment was of a domestic nature has been omitted more frequently than at the census. Each rate is misleading if considered alone, but there is good reason to believe that if motor car drivers are treated as a whole the rates so obtained will closely represent the facts for the whole class, the occupation, in contrast to its sub-divisions, being a very distinctive one. This has accordingly been done in group 8 of Table XVII., attention being called to the fact in Table XVI. by footnotes to each of the constituent headings of the group. In all cases where these footnotes appear it is to be remembered that the rates shown in Table XVI. are unreliable, and that attention should rather be directed to the rates given in Table XVII. for the group of occupations in which the footnote shows the one in question to be included.

The reason for using two methods of statement of fertility in these tables is analogous to that for stating standardized as well as crude death-rates. The constitution of the populations following certain occupations is much more favourable to fertility than that of others for at least three reasons, firstly that occupations differ greatly in the proportion of men they contain of an age beyond that at which men's families as a rule cease to increase, secondly that the proportions of married men in the same age-groups differ greatly in different occupations, and thirdly that the wives of married men of equal age are younger in some occupations than others. Occupations having many old men and comparatively small proportions of their younger men married have naturally, other things being equal, a lower fertility than others where the opposite conditions prevail. A good example of this is furnished by the contrast between agricultural labourers and motor car drivers. In Tables XVI. and XVII. age 55 has been taken as the most suitable for marking the termination of the time of life at which men's children are generally born to them. Using this limit we find from the census returns that 99 per cent. of motor drivers fall within it, against only 83 per cent. in the case of agricultural labourers.

Moreover the proportion of motor drivers married is much above the average and that of agricultural labourers considerably below it at every age-period.* It follows that if children had been born in 1911 in equal proportions to married motor drivers and to married agricultural labourers of reproductive age the fertility of the latter occupation as a whole would have been far below that of the former. From some points of view it may be desired to ascertain the rate at which the population engaged in any occupation is reproducing itself, its "crude" fertility; and from other points of view its rate of reproduction in proportion to opportunity may be the information desired. For this reason two rates are given in Tables XVI. and XVII., the first being the crude fertility rate, and the second a rate roughly standardized by stating the births in proportion to married men aged less than 55 years. Measured in the first way the fertility of motor drivers exceeds that of agricultural labourers by 120 per cent., but only by 20 per cent. when measured in the second way.

The accuracy of the standardization obtained by the rough method employed in these tables leaves much to be desired, since the natural limitation of the number of legitimate children born to men is generally formed by the fertility of their wives, which again is closely associated with age. Any refined method of standardization would therefore entail knowledge of the age of the wives of the married men following each occupation. This is obtainable from the census schedules, but has never been tabulated. For the 1911 census however the age at marriage of husbands and wives in combination is being tabulated for each occupation, and this in conjunction with the tabulated statements of numbers of children born and surviving* will make it possible to calculate fully standardized families for each occupation or group of occupations. These rates will be free from the weakness of those shown here for the births of 1911 in that due allowance will be made in them for the differences in the age at which men in different occupations marry and for the differences between their ages at marriage and those of their wives. In the absence of such allowance the figures in the second column of rates in Tables XVI. and XVII. must be regarded as only very roughly comparable, but notwithstanding this the differences between the rates in this column of the tables are so great that no further refinement of standardization could be expected to call for any very serious modification of the conclusions which may be drawn from them.

TABLE XV.—ENGLAND AND WALES, 1911.—LEGITIMATE BIRTH-RATES IN SOCIAL CLASSES.

Social Class.	Per 1,000 Males aged 10 Years and over (including Retired).	Per 1,000 Married Males aged under 55 Years (including Retired).	Social Class.	Per 1,000 Males aged 10 Years and over (including Retired).	Per 1,000 Married Males aged under 55 Years (including Retired).
I.—Upper and Middle Class ...	47	119	VI.—Textile Workers ...	50	125
II.—Intermediate Class (excluding scholars).	46	132	VII.—Miners ...	107	230
III.—Skilled Workmen ...	73	153	VIII.—Agricultural Labourers.	49	161
IV.—Intermediate Class ...	70	158	III.—VIII.—Working Class	76	175
V.—Unskilled Workmen ...	90	213	All Classes ...	62	162

Table XV. summarizes the facts recorded in Tables XVI. and XVII. into records relating to the same eight social groups as were employed in the section of the Report for 1911 which dealt with infant mortality according to fathers' occupations. The occupations composing the various groups are indicated by the numbers 1 to 8 in the first column of Table XVI. Groups 1-5 are arranged in descending order of the social scale from upper and middle class occupations in group 1 to purely unskilled labour in group 5. It will be seen that in the case of these five groups fertility, like infant mortality, increases progressively from the first to the fifth group. When the total number of workers is considered there is some little irregularity in this increase, but when the births are related to the number of probable fathers alone, the order of the five groups in regard to fertility is exactly the inverse of their order in social status. Thus in respect of fertility as of infant mortality the result of the first investigation on a national scale absolutely bears out the

* Census Report (1911), Vol. X., Table 20.

conclusions already arrived at by previous students of the subject, whose material was necessarily less complete.

TABLE XVI.—ENGLAND AND WALES, 1911.—LEGITIMATE BIRTHS in each OCCUPATION in PROPORTION to (1) MALES OVER 10 YEARS OF AGE (including Retired); (2) MARRIED MALES UNDER 55 YEARS OF AGE (including Retired).

Main data table for England and Wales, 1911, showing legitimate births by occupation. Columns include Social Class No., Occupation, and birth rates for males aged 10+ and married males under 55.

Volume X of the Census Report does not record the numbers of 'retired' married men of different ages according to the occupation they previously followed. Table 17 of that volume, however, gives the numbers of these retired married men with distinction of occupation but not of age, and Table 7 gives their numbers with distinction of age but not of occupation.

a See Group 1 } Table XVII; b See Group 2; c See Group 3; d See Group 4; e See Group 5; f See Group 52; g See Group 8; h See Group 15; i See Group 13; j See Group 14; k See Group 15; l See Group 16; m See Group 17; n See Group 18; o See Group 22; p See Group 23; q See Group 24; r See Group 25; s See Group 19.

TABLE XVI.—continued.

Continuation of Table XVI, covering occupations VI through XIV, including Conveyance, Fishing, Metals, and Agriculture. Columns include Social Class No., Occupation, and birth rates for males aged 10+ and married males under 55.

a See Group 8 } Table XVII; b See Group 9; c See Group 10; d See Group 11; e See Group 12; f See Group 13; g See Group 14; h See Group 15; i See Group 16; j See Group 17; k See Group 18; l See Group 19; m See Group 20; n See Group 21; o See Group 22; p See Group 23; q See Group 24; r See Group 25; s See Group 19.

TABLE XVI.—continued.

Table with columns: Social Class No., Occupation, Number of Married Males aged under 55 years (including Retired), Legitimate Births, Per 1,000 Males aged 10 years and over, Per 1,000 Married Males aged under 55 years, Birth Rates. Includes sections X, XI, XII, XIII, XIV, and XV.

a See Group 20
b See Group 21
c See Group 22
d See Group 23
e See Group 24

See Group 25
g See Group 26
h See Group 27
i See Group 28
j See Group 29
k See Group 30
l See Group 31

Table XVII
Table XVIII
Table XIX

TABLE XVI.—continued.

Table with columns: Social Class No., Occupation, Number of Married Males aged under 55 years (including Retired), Legitimate Births, Per 1,000 Males aged 10 years and over, Per 1,000 Married Males aged under 55 years, Birth Rates. Includes sections XVI, XVII, XVIII, and XIX.

a See Group 32
b See Group 33
c See Group 34
d See Group 35
e See Group 36
f See Group 37

g See Group 38
h See Group 39
i See Group 40
j See Group 41
k See Group 42

Table XVII
Table XVIII
Table XIX

m See Group 44
n See Group 45
o See Group 46
p See Group 47
q See Group 48

TABLE XVIII.—ENGLAND and WALES, 1911.—ILLEGIMATE BIRTHS in CERTAIN OCCUPATIONAL GROUPS in proportion to the UNMARRIED and WIDOWED FEMALE POPULATION aged 15-45 YEARS (including RETIRED).

Order, Sub-order and Title Number (the latter in brackets) of Headings in the 1911 Census Classification.	Occupational Group.	Number of Unmarried and Widowed Females aged 15-45 years enumerated at Census 1911 (including Retired).	Illegitimate Births, 1911.	Birth Rate per 1,000.
I.—XXII	All Unmarried and Widowed Females aged 15-45 years.	4,701,324	37,633	8.0
XXIII	Occupied	3,403,299	30,260	8.9
	Unoccupied or Occupation not stated	1,298,025	7,373	5.7
I: 1 (1, 2, 5)	Civil Officers (Officers and Clerks)	22,949	21	0.9
III: 3 (4, 5)	Midwives; Sick Nurses	49,385	106	2.1
III: 4 (1)	School Teachers	152,838	105	0.7
III: 7 (5)	Musicians	17,537	53	3.0
III: 7 (6)	Actresses	5,256	78	14.8
IV: 1 (1, 2); 3 (6)	Domestic Servants	1,147,241	17,132	14.9
IV: 3 (7)	Charwomen	34,279	1,494	43.6
IV: 3 (8)	Laundry and Washing Service	83,413	1,318	15.8
V: 2 (1)	Commercial Clerks	111,067	236	2.1
VII: 1 (1, 2)	Farmers, Farmers' Daughters, &c.	52,739	76	1.4
VII: 1 (3, 6, 7)	Agricultural Labourers	8,131	290	35.7
VII: 1 (3, 4, 8-13)	Others engaged in Agriculture	2,117	28	13.2
IX: 1 (3)	Coal Mine—Workers above Ground	2,343	70	29.9
X: 1-8, 10	Working in Metals, Machines, Implements and Conveyances.	70,479	621	8.8
XI: 1: 2: 3	Working in Jewellery, Watches, and Scientific, &c., Instruments.	10,874	26	2.4
XIII: 1 (1-7)	Working in Furniture Fittings, and Decorations.	12,606	78	6.2
XIII: 2 (1-7)	Working in Wood, Cork and Bark	3,414	40	11.7
XIV: 1 (1)	Brick, Plain Tile, Terra-cotta—Makers	1,954	70	35.8
XIV: 1 (3)	Earthenware Manufacture	18,378	227	12.4
XIV: 1 (4, 5, 6)	Glass Manufacture	2,299	26	11.3
XV: 4 (5, 6)	India rubber, Gutta-percha—Workers; Waterproof Goods Makers.	6,869	36	5.2
XVI: 1 (1, 2, 3)	Furriers, Curriers, &c.	4,609	26	5.6
XVI: 1 (4); 2 (1)	Saddlers; Leather Goods Makers	8,128	49	6.0
XVI: 3 (1)	Brush, Broom Makers; Hair Bristle—Workers.	4,788	34	7.1
XVII: 1 (1)	Paper Manufacture.	5,389	47	8.7
XVII: 1 (2-7)	Stationery Manufacture and Other Workers in Paper.	36,470	143	3.9
XVII: 2 (1-7)	Printers; Lithographers; Bookbinders	35,709	111	3.1
XVIII: 1	Cotton Manufacture	226,459	1,707	7.5
XVIII: 2	Wool, Worsted—Manufacture	82,968	546	6.6
XVIII: 3	Silk Manufacture	13,065	83	6.4
XVIII: 4	Workers in Hemp, Jute, and Other Fibrous Materials.	11,382	174	15.3
XVIII: 5, 6	Other Textile Workers	79,575	552	6.9
XIX: 1 (1, 2)	Straw Plait, Straw Hat—Manufacture	5,038	36	7.1
XIX: 1 (6)	Milliners	57,356	127	2.2
XIX: 1 (8)	Tailoresses	89,831	469	5.2
XIX: 1 (10)	Dressmakers	257,876	769	3.0
XIX: 1 (11)	Staymakers	9,907	64	6.5
XIX: 1 (12)	Shirtmakers; Seamstresses	50,715	235	4.6
XIX: 1 (16, 17)	Boot, Shoe, Slipper—Makers	29,121	209	7.2
XVI: 3 (2); XIX: 1 (3-5, 13, 14, 18, 20-23).	Other Workers in Dress	28,097	103	3.7
XX: 1 (14, 15)	Jam, Sweet, Cocoa—Manufacture	27,252	129	4.7
XX: 1 (18)	Mineral Water Manufacture	1,956	42	21.5
XX: 1 (1, 3, 5, 7, 9, 11, 13, 19)	Other Workers in Food Manufacture	14,233	83	5.8
XX: 2 (1)	Tobacco Manufacture	15,859	72	4.5
XX: 4 (6)	Barmaids	20,583	275	13.4
XX: 4 (7)	Waitresses	25,413	333	13.1
XX: 4 (8)	Others in, Inn, Hotel, &c.—Service	9,196	53	5.8
XXII: 3 (7)	Rag Gatherers—Dealers	2,724	80	29.4
XXII: 4 (4, 6)	Hawkers	4,076	271	66.5
X: 11 (1, 2); XI: 5 (1, 2); XIII: 1 (8, 9); 2 (3); XIV: 1 (7, 8); XV: 3 (4); 4 (8, 9); XVI: 4 (1); XVII: 1 (8, 9); 2 (8, 10); XVIII: 7 (1, 2); XIX: 1 (7, 9, 15, 19, 24); XX: 1 (2, 4, 6, 8, 10, 12, 16, 17, 20); 2 (2); 4 (9); XXII: 3 (9, 10); 4 (1, 2, 3).	Shopkeepers and their Assistants	241,405	715	3.0
	All Other Occupations	187,951	592	3.1

Volume X of the Census Report does not record the numbers of "retired" single and widowed females of different ages according to the occupation they previously followed. Table 17 of that volume, however, gives the numbers of these retired, single, and widowed females with distinction of Occupation, but not of age, and Table 8 gives their numbers with distinction of age, but not of occupation. From the latter Table it is found that 14.2 per cent. of the whole were between 15 and 45 years of age, and this proportion has been applied to the totals recorded for each occupation in Table 17 to obtain the numbers of retired, single, and widowed females between 15 and 45 years of age included with the occupied in this Table.

workers of similar standing is strongly suggestive of purposeful avoidance of fertility as the cause of the difference. Indeed it seems difficult to account otherwise for the contrast between miners and mill hands, two classes very similarly situated in most respects other than the employment of their womenfolk.

It might perhaps have been expected that the fertility of agricultural labourers would have been higher than it is. In the recently published section of the Scottish census report dealing with fertility, crofters occupy the highest place in the list of occupations and farm servants are highly placed. In England however not only does the agricultural labourer remain unmarried to a much larger extent than the average man (Census Report 1911, volume X, Table 20) but when he is married his fertility barely attains the average for all classes, and is eight per cent. below that of the working classes as a whole. The interest of these facts in relation to recent discussion of the adequacy of the agricultural labourer's wages and housing need scarcely be pointed out, but the compatibility of scarcity of house accommodation with high fertility as illustrated by the case of miners must be borne in mind. The advantage of this class in regard to infant mortality was only very moderate in 1911, a year in which, owing to its exceptional climatic conditions, the corresponding advantage of the country over the town was probably almost at its maximum. Using the 1911 rates however, as the only figures available, the 161 infants born to 1,000 married agricultural labourers of less than 55 years of age are reduced to 145.4 survivors at the end of the first year, and the 175 born in the case of the working classes in general to 151.8.

The fertility of miners is a very prominent feature of Table XV. It has long been noticeable that the registration counties in which mining was extensively carried on had high birth-rates, and in 1912 the three administrative counties with the highest birth-rates (pages 133-162) are Glamorgan, Monmouth and Durham. This exceptional fertility of the mining population is also to be noted in the Scottish census returns, and in the statistics of various foreign countries. It may be noted that it exists despite the fact of great scarcity of house accommodation in some at all events of the areas where it is most marked, and that it is accompanied by a heavy excess of infant mortality, the latter however not being nearly sufficient to reduce the number of survivors at one year of age to the average for the working classes.

Little need be said here of the details of occupational fertility presented in Tables XVI. and XVII. In the main the rates recorded in these tables are much what might be expected from the facts already dealt with. The two tables should be studied in conjunction with Tables 3, 7 and 20 of the Census Report on Occupations, showing respectively the numbers of males and of married males at ages in each occupation, and the proportion of males of different ages in each occupation who are married. An instance of the use of these census tables in throwing light upon peculiarities in the results here presented has been quoted already in the case of agricultural labourers and motor car drivers. As a further instance the comparative fertility of Church of England clergymen and Nonconformist ministers may be referred to. Table XVI. shows that in comparison to total numbers following these occupations the fertility of ministers is decidedly superior, but that when comparison is restricted to married men under 55 years of age, the ministers are at a disadvantage. The census tables supply the explanation. In the first place although the proportion of old men is very high in both callings it is higher in the Church—35 per cent. over 55 years of age against 30 per cent. for the other group and 18 per cent. for males over 20 years of age in general. The main disadvantage of the Church however lies in the much smaller proportion of its ministers married, as shown in Table 20 of the Census Report on Occupations. Thus, to compare the most fertile ages, at 25-35, 54 per cent. of the Nonconformists were married, against only 29 per cent. of the Churchmen, and at 35-45 the proportions were 86 and 68 per cent. respectively. As a result of the combined action of these two causes the proportion of married men under 55 years of age to the total in the occupation is only 40 per cent. amongst the Church clergy as against 53 per cent. for the ministers and 51 per cent. for men over 20 years of age in the community at large.

Although the attempt has been made in Table XVII. to restate the fertility of those occupations in Table XVI. which are likely to be fallacious, by grouping together headings between which there is insufficient demarcation, it does not follow that all the entries in Table XVI. to which no note is attached are free from suspicion. Civil and mining engineers (III. 6 (1)) for instance are credited with a fertility suspiciously in excess of those prevalent amongst the professional classes in general. It is very possible that this may be due to loose application of the designation to persons other than professional engineers, since engine fitters are often spoken of as engineers. It is probable however that it is mainly due to the fact that the replies to the census question relating to industry

made it possible to assign to IX. 1 (4) (coal-mine—owners, agents, managers) a number of mining engineers in the employ of coal-mines who in the absence of such information in the birth registers were treated as consulting engineers and allocated to III. 6 (1). It has not been thought desirable to get over the difficulty by giving a combined rate for III. 6 (1) and IX. 1 (4), the latter of which groups shows a suspiciously low fertility, because such a combined group would include many persons other than engineers. Inaccuracies of this kind being even more difficult to avoid in the birth registers than at the census they have probably had the effect of artificially swelling the total of births attributed to the class. The occupational designations listed to each heading in both census and births tabulation may be seen in the Appendix to volume X of the Census Report, but of course no consistence of practice in this respect can eliminate error due to careless use of imperfectly defined occupational terms. In other cases a somewhat similar result arises in another way. The fertility of soldiers and fishermen (Table XVI.) and of men of the Royal Navy (Table XVI.) is very high because many fathers in these callings are absent from the country at census date though their homes are here and their children are born and registered in England.

It will be seen that there are many possibilities of error in tables which depend upon the description of occupations both in the census and the registers. This has long been recognised in the case of occupational mortality tabulation and its probable effects pointed out in the decennial reports on that subject. It has been thought best not to suppress any of the tabulated results because of the probability that they may be factitious but to allow the student of the tables the opportunity as far as possible of forming an estimate of their accuracy, while at the same time suggesting, in Table XVII., groups of occupations which may be used with more safety than the units of which they are composed.

It is not in all cases within the power of the staff which has classified and tabulated the facts represented in the tables to furnish explanations of the results arrived at. Apparently anomalous results which are not obviously due to such causes as have been illustrated above must be left for the consideration of economists and sociologists, who are best equipped for the task.

With regard to Table XVIII., which states the fertility of the single and widowed women engaged in various occupations, two cautions must be borne in mind, (1), that illegitimacy is by no means necessarily a measure of immorality, and (2), that the possibilities of discrepancy between census and registration figures apply to this table as well as to Tables XV–XVII.

It may probably be said that the most prominent feature of the table is the degree to which illegitimate fertility is related to social status. Thus the highest rates in the table are those of hawkers (66·5), charwomen (43·6), brickmakers (35·8), agricultural labourers (35·7), pit brow workers (29·9), rag gatherers (29·4), and mineral water manufacturers (21·5); while the lowest are those of teachers (0·7), civil service clerks (0·9) farmers' daughters (1·4), commercial clerks (2·1), sick-nurses (2·1), and milliners (2·2). The contrast here is obvious, and is especially remarkable in the case of the women farmers and farmers' daughters and of the women labourers in their employ.

No less than 46 per cent. of all the illegitimate infants born during 1911 were the children of domestic servants, but the table shows that while the rate for this, numerically the most important occupation, is high, it is very much exceeded by those of a number of others. The excess shown by the workers in the coarse textile materials over the moderate rates for textile workers in general is noteworthy, as is also the fact that the rates for actresses and barmaids are not higher than they are shown to be, having regard to the conditions of their employment.

Sex Proportions at Birth.—Births of males in England and Wales numbered 445,004, and those of females 427,733; the proportion of male to female births being, therefore, 1,040 to 1,000. The corresponding proportions in each year since 1863 and in groups of years since the commencement of registration are shown in Table 6, page 20; the extreme range has been from 1,032 per 1,000 in 1898 to 1,054 in 1843 and in 1844. Compared with other countries the proportion in England is exceedingly low, the ratio most commonly returned being 1,050–1,060.

The extent to which the proportional excess in the number of boys at birth varies in the different counties and other administrative areas of England and Wales may be gathered from the returns tabulated on pages 132–162. A table was inserted in the Report for 1911 showing the degree of male excess in the same classes of area and portions of the country as are dealt with in Table XIV. Comparison of this with a similar table for 1912 however shows that the differences between the records of the two years are far too great to allow of any significance being attached to such a table for a

single year. The results of several years tabulation must evidently be awaited before any characteristic differences in regard to this matter between the various sections of the population can be brought to light.

Illegitimate Births.—The births registered during the year 1912 included 37,528 of illegitimate children.

Illegitimacy is usually stated in the form of the proportion of illegitimate births either to total births or to total population. The first method of statement is objectionable as expressing one variable (the rate of illegitimacy) in terms of another (the total birth-rate). A 4 per cent. rate of illegitimacy, for instance, in a district where

TABLE XIX.—ENGLAND AND WALES.—ILLEGITIMATE BIRTHS, 1876–1912.

Period.	In proportion to total Births.		In proportion to total Population.		In proportion to the Unmarried and Widowed Female Population aged 15–45 years.	
	Rate per 1,000.	Compared with rate in 1876–80 taken as 100.	Rate per 1,000.	Compared with rate in 1876–80 taken as 100.	Rate per 1,000.	Compared with rate in 1876–80 taken as 100.
1876–1880... ..	47·5	100·0	1·7	100·0	14·4	100·0
1881–1885... ..	48·0	101·1	1·6	94·1	13·5	93·8
1886–1890... ..	46·3	97·5	1·5	88·2	11·8	81·9
1891–1895... ..	42·4	89·3	1·3	76·5	10·1	70·1
1896–1900... ..	41·0	86·3	1·2	70·6	9·2	63·9
1901–1905... ..	39·5	83·2	1·1	64·7	8·4	58·3
1906–1910... ..	40·2	84·6	1·1	64·7	8·1	56·3
1876	46·8	98·5	1·7	100·0	14·6	101·4
1877	47·5	100·0	1·7	100·0	14·6	101·4
1878	47·2	99·4	1·7	100·0	14·4	100·0
1879	47·9	100·8	1·7	100·0	14·2	98·6
1880	48·3	101·7	1·6	94·1	14·1	97·9
1881	48·8	102·7	1·7	100·0	14·1	97·9
1882	48·5	102·1	1·6	94·1	13·8	95·8
1883	47·9	100·8	1·6	94·1	13·4	93·1
1884	47·1	99·2	1·6	94·1	13·2	91·7
1885	47·9	100·8	1·6	94·1	13·0	90·3
1886	47·4	99·8	1·6	94·1	12·8	88·9
1887	47·5	100·0	1·5	88·2	12·4	86·1
1888	46·3	97·5	1·4	82·4	11·7	81·3
1889	45·9	96·6	1·4	82·4	11·5	79·9
1890	44·2	93·1	1·3	76·5	10·7	74·3
1891	42·4	89·3	1·3	76·5	10·6	73·6
1892	41·9	88·2	1·3	76·5	10·1	70·1
1893	42·5	89·5	1·3	76·5	10·3	71·5
1894	43·1	90·7	1·3	76·5	9·9	68·8
1895	42·1	88·6	1·3	76·5	9·9	68·8
1896	42·3	89·1	1·3	76·5	9·7	67·4
1897	41·7	87·8	1·2	70·6	9·5	66·0
1898	41·5	87·4	1·2	70·6	9·3	64·6
1899	40·0	84·2	1·2	70·6	8·9	61·8
1900	39·7	83·6	1·1	64·7	8·6	59·7
1901	38·9	81·9	1·1	64·7	8·4	58·3
1902	39·0	82·1	1·1	64·7	8·4	58·3
1903	39·3	82·7	1·1	64·7	8·5	59·0
1904	39·9	84·0	1·1	64·7	8·5	59·0
1905	40·2	84·6	1·1	64·7	8·3	57·6
1906	40·0	84·2	1·1	64·7	8·3	57·6
1907	39·4	82·9	1·0	58·8	7·9	54·9
1908	39·9	84·0	1·1	64·7	8·2	56·9
1909	41·0	86·3	1·1	64·7	8·1	56·3
1910	40·8	85·9	1·0	58·8	7·8	54·2
1911	42·7	89·9	1·0	58·8	8·0	55·6
1912	43·0	90·5	1·0	58·8	7·9	54·9

the total birth-rate is 30, implies more illegitimacy than a 5 per cent. rate where the total birth-rate is 20. The second method of statement yields a crude illegitimate birth-rate corresponding to the crude total birth-rate, and the remarks on page xix as to the latter apply to it.

The most satisfactory measure of illegitimacy we possess is that which expresses the fertility of unmarried women in the form of a statement of the number of illegitimate children compared with that of single and widowed women of conceptive ages.

The preceding table shows for a series of years the results of the different methods of measuring illegitimacy.

Comparing the proportion of illegitimate births in England and Wales in the year 1912 with that obtaining in the quinquennial period 1876-80, it will be seen that based on the standard of total births the rate of illegitimacy had decreased by less than 10 per cent. The crude illegitimate birth-rate, however, based on the total population, shows during the same period a decline of 41 per cent., while the rate based on the numbers of unmarried and widowed women of conceptive ages fell by 45 per cent.

The extent of illegitimacy in different classes of area and parts of the country may be gathered from Table XX., from which it may be seen that statement in proportion to total population conceals the excess of illegitimacy in the rural districts which is definitely brought out by the other portion of the table. Stated in relation to unmarried women of conceptive ages illegitimate births were most frequent in the rural districts and least so in London. They were also most frequent in Wales, and least so in the South of England.

TABLE XX.—ILLEGITIMATE BIRTH-RATES, 1912.

	Per 1,000 total Population.					Per 1,000 Unmarried and Widowed Females aged 15-45 years.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	0.95	—	0.95	—	—	6.35	—	6.35
County Boroughs ...	1.11	1.04	1.11	0.90	1.08	8.38	7.89	7.69	7.59	8.11
Other Urban Districts...	1.01	0.98	0.91	1.03	0.98	7.84	7.55	6.18	9.76	7.51
Rural Districts...	1.13	1.10	0.91	1.28	1.07	9.44	10.08	7.52	10.83	9.31
All areas	1.07	1.03	0.95	1.09	1.02	8.32	8.30	6.68	9.69	7.86

Natural Increase.—The fall in the birth-rate which characterised the year 1912 was accompanied by a still greater fall in the death-rate from the level attained in the exceptionally hot and dry summer of 1911. The natural increase, or excess of birth-rate over crude death-rate, rose from 9.8, at which it stood in 1911, to 10.5 per thousand persons living. These two rates are the lowest ever recorded in this country, the next lowest being 11.2, in 1909. As the death-rate in 1912 was the lowest yet attained, and yet the natural increase was also exceptionally low, it is evident that the fall in the birth-rate has now reached a point at which it is no longer likely to be fully compensated by decrease in mortality. Table XXI shows that during the first few years after the birth-rate commenced to fall in 1877 a diminution of natural increase resulted, then for many years the fall in mortality compensated for that in natality, but in 1911 and 1912 this compensation has failed. Moreover the falling birth-rate must automatically tend to increase the death-rate by increasing the average age of the population, and as the scope for further improvement in mortality experience is limited by the natural duration of human life it seems almost certain that continuance of the present fall in natality must tend more and more to outstrip that in mortality.

The effect of the increased age of the population, brought about by the falling birth-rate, may be traced in Table 6. This table shows that at the time the birth-rate began to fall the population was less favourably constituted in relation to mortality than in 1901, the period selected as a standard for general comparison. This is shown by the fact that the death-rate of, for instance, 1877, is reduced on standardization from 20.3 to 19.4 to make it fairly comparable with that of 1901. The first effect of the fall in the birth-rate which then set in was to bring about so great a reduction of the proportion of young children in the population that the death-rate was diminished in consequence. This effect continued up to about the year 1901, as shown by the fact that crude death-rates require less and less reduction on standardization up to that year. Since then however the favourable effect upon mortality of reduction in the proportion of

infants has been outweighed by the adverse effect of reduction in the proportion of children and youths and increase in that of elderly persons. This is shown by the fact that the crude death-rate has now once more to be decreased, and that to an increasing extent, to make it comparable with that of the favourably composed population of 1901. With a continuance of the fall in the birth-rate this latter phase of change in our population must also continue, and so must play its part in the reduction of our natural increase.

TABLE XXI.—NATURAL INCREASE of POPULATION per 1,000 LIVING, 1876-1912.

	Mean Annual Birth-rate per 1,000 living.	Mean Annual Death-rate per 1,000 living.	Mean Annual Rate of Increase by excess of Births over Deaths, per 1,000 living.
1876-1880	35.3	20.8	14.5
1881-1885	33.5	19.4	14.1
1886-1890	31.4	18.9	12.5
1891-1895	30.5	18.7	11.8
1896-1900	29.3	17.7	11.6
1901-1905	28.2	16.0	12.2
1906-1910	26.3	14.7	11.6
1906... ..	27.2	15.5	11.7
1907... ..	26.5	15.1	11.4
1908... ..	26.7	14.8	11.9
1909... ..	25.8	14.6	11.2
1910... ..	25.1	13.5	11.6
1911... ..	24.4	14.6	9.8
1912... ..	23.8	13.3	10.5

TABLE XXII.—NATURAL INCREASE per 1,000 LIVING, 1912.

	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	10.9	—	10.9
County Boroughs ...	10.1	11.4	8.3	12.8	10.5
Other Urban Districts ...	10.6	12.0	8.3	15.3	11.1
Rural Districts	12.2	9.3	8.0	11.1	9.8
All areas	10.6	11.1	9.3	13.4	10.5

The distribution throughout the country of the natural increase recorded in 1912 is shown in Table XXII. It will be seen that as in 1911 it was, like the birth-rate, highest in Wales in all but the rural areas, and lowest in the South in all three classes of area. The advantage in birth-rate possessed by the North over the Midlands does not prevent its rate of increase being lower, owing to the higher mortality in the North. The same statement holds good of the county boroughs and the smaller urban districts in the country at large. The advantage in birth-rate of 1.6 per 1,000 enjoyed by the county boroughs over the smaller towns (Table XIV.) is converted by excess of mortality into a deficiency of 0.6 per 1,000 population in natural increase. In the absence of migration the large towns would have increased at the same rate as the country at large, the smaller towns faster, and the rural areas more slowly. These facts are worth noting in view of the assumption sometimes loosely made that the population of the towns would cease to increase if it were not recruited from the country. It is true that the figures in the table probably do not fairly represent the increase characteristic of the town and country born, for many births in towns are the result of fertility freshly imported from the country, but the rural population now bears so small a proportion to the whole that this consideration must be of much less importance than in former years.

If Table XXII. is contrasted with the similar table in last year's Report it may be seen that the rise in natural increase in 1912 as compared with 1911 is confined to the towns. The country districts had naturally not been so much affected by the infantile diarrhoea which so adversely influenced the mortality of 1911, and consequently their death-rate fell much less in 1912. On the other hand, as already noted, they experienced the greatest fall in natality of any class of area in 1912. Hence it has come about that in the rural areas of the Midlands and South the natural increase was actually less than in the exceptionally unfavourable year 1911, and in those of the country at large only just

equal to that of 1911. Much attention has of late been directed to lack of cottage accommodation in rural areas, which is stated in some cases to diminish opportunity for marriage and parenthood, and in view of such statements additional interest attaches to the fact that natural increase was at its lowest in the rural districts in 1912.

DEATHS.

The deaths of 486,939 persons were registered in England and Wales during 1912, 250,232 of these being males and 236,707 females.

These deaths correspond to a rate of 13.3 per 1,000 population, or 0.2 below that for the year 1910, the lowest recorded up to that time. Reference to Table 6 shows that during the first twelve years of the present century the standardized death-rate* has fallen from 16.9 per 1,000 in 1901 to 12.9 in 1912. In eight of these twelve years, viz., 1902, 1903, 1905, 1907, 1908, 1909, 1910, and 1912, the death-rate has been successively the lowest on record. The lowest standardized rate recorded during the nineteenth century was 16.4 in 1894. This remarkable fall in mortality is the rule rather than the exception in the recent experience of progressive countries (see Table 42). Since registration began in this country the average standardized death-rate

* The need for modification of the crude death-rate, that is the proportion borne by deaths registered to each thousand of the population at all ages, if true comparison is to be made of the force of mortality at different times or in different areas, has frequently been pointed out in these Reports. The two methods of effecting this "standardization" of recorded death-rates here employed were fully described in the Annual Report for 1911 (pp. xxvii-xxx). Owing to the laborious nature of the calculations involved by use of the "direct" method, which is to be preferred on the ground of accuracy, the standardized rates shown for administrative areas on pages 132-162 have been obtained by the indirect or factorial method, by which the standardizing factor represents the relation of the "index death-rate" for the standard population, that of England and Wales in 1901, to the "index death-rate" of the population in question (the index death-rate itself being a measure of the effect upon mortality of the age- and sex-constitution of the population as ascertained at the latest census). The following comparison of the results of application of the two methods shows that the differences are not as a rule of great importance.

Rates calculated upon the standard recommended by the International Statistical Institute, viz., the population of Sweden in 1890, distinguishing five groups of ages, but without distinction of sex, are also shown.

	Crude Death-rate per Million Population, 1912.	Standardized Rates.		
		By Direct Method (England and Wales Standard, 1901).	By Indirect Method (England and Wales Standard, 1901).	By Direct Method (International Standard, 1890).
England and Wales	13,290	12,914	13,011	15,679
London... ..	13,832	13,782	13,832	16,451
County boroughs	14,712	15,164	15,102	17,900
Other urban districts	12,523	12,392	12,444	15,085
Rural districts	12,340	10,506	10,936	13,400

In order that those interested in the subject may have an opportunity of using the standardization method to the fullest extent which the calculations permit, the table showing "calculated deaths" and "adjusted populations" on pages 163-174 has been inserted. The figures in the second column of this table are those referred to on page xxix, of the Annual Report for 1911, as giving "the deaths that would have occurred in a year had the mortality of each sex- and age-group been the same as that in England and Wales as a whole" (during 1901-10). By the addition of these calculated deaths and adjusted populations for any combination of areas, a standardizing factor can be obtained for the combination in the same way as for the individual areas. Thus if it were desired to ascertain the standardized death-rate of Manchester and Salford in combination the procedure would be as follows;—

	Calculated deaths.	Adjusted population.
Manchester	10056.5	714,949
Salford	3275.9	231,357
Combined area	13332.4	946,306

The index death-rate for the combined area therefore = $\frac{13332.4 \times 1000}{946306} = 14.09$. The index death-rate for the standard population, that of England and Wales in 1901, was 15.19, and the standardizing factor for the combined area is therefore $\frac{15.19}{14.09} = 1.0781$.

has been 19.4 per 1,000 living, as against 12.9 in 1912. During 1861-70 this rate stood at 21.3, and so recently as 1891-95 at 18.5, since when therefore the fall has been very rapid.

Mortality of each Sex.—The standardized mortality* of males in 1912 exceeded that of females by 14 per cent. (Table 6). Up to 1860 or so the excess was only about six per cent., but for the last 15 years it has averaged about 14 per cent. Since 1841-1845, the first quinquennium in the table, the standardized mortality of females has fallen by 39.8 per cent. while the fall in that of males has been only 35.2 per cent.

Tables 13 and 14 show that the excess in the mortality of males exists at all ages except in the years of childhood, when mortality is at its minimum. The excess, however, is very unequally distributed, being large in infancy, negative in childhood, then gradually increasing to a maximum in later middle life, and from this declining again with advancing age. Comparison with the similar age distribution of the excess of urban over rural mortality for each sex inevitably suggests itself (see page liii and Diagram IV). The ratios of male per cent. of female mortality at the various age-periods during the years 1901-1910 and 1912 are as follows:—

	0—	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—	85—
1901-10	119	97	95	107	120	119	123	130	128	120	115	112
1912	120	101	93	105	115	121	125	131	132	124	116	108

Tables 13 and 14 also show that during the period covered curious changes have occurred in the ages at which juvenile mortality is in excess in the female sex. The only three age-periods, with one or two trifling exceptions, at which the mortality of males has not been in constant excess are 5-10, 10-15, and 15-20. For the first of these three periods mortality has been higher in the male sex during 1911 and 1912. For over a quarter of a century before 1911 it had been at least as high amongst females, and very commonly higher, but before the year 1884 the mortality of males at this age was in almost constant excess. The recent change in this matter forms, therefore, a reversion to an earlier state of affairs. At ages 10-15, at which period alone the mortality of females is now in excess, this excess has been fairly constant, but during the eleven years 1865-1875 girls of this age only once experienced a higher mortality than boys. Finally the age group 15-20, at which from the year 1894 onwards the mortality of males has been in constant excess, affords only two instances of such excess (in 1876 and 1890) prior to that year. It seems advisable to draw attention to these curious changes, even though no explanation of them can be advanced, for it can scarcely be supposed that they are without significance.

TABLE XXIII.—ANALYSIS by CAUSES of DEATH of the EXCESS of MALE over FEMALE MORTALITY, 1912.

	Male mortality per 1,000 living.	Female mortality per 1,000 living.	Excess or deficiency of (1) compared with (2).	Percentage of total male excess.
	(1)	(2)	(3)	(4)
Phthisis	1.217	.873	+ .344	21.4
Other forms of Tuberculosis ... ..	.352	.302	+ .050	3.1
Pneumonia (all forms)	1.205	.845	+ .360	22.4
Cancer (excluding generative and mammary organs) ... ..	.898	.674	+ .224	13.9
Violence ... ..	.784	.313	+ .471	29.3
Infantile deaths not included above	2.244	1.588	+ .656	40.7
Causes of death not particularised in this table	7.405	7.290	+ .115	7.2
Total	14.105	11.885	+ 2.220	138.0
Diseases incident to Pregnancy and Child-bearing	—	.184	— .184	11.4
Cancer of generative and mammary organs ... ..	.015	.443	— .428	26.6
All Causes	14.120	12.512	+ 1.608	100.0

* I.e., by the ordinary method of calculation (see page xxxvi) by which the death-rates at ages for each sex are applied to the number of the sex living at each age in a standard million. But this method of comparison, while fair as between dates or localities, is inapplicable to a comparison between the sexes since it ignores the less favourable age-constitution of the female element in the standard population. To allow for this the age-group death-rates for each sex have been applied successively to the 1901 standard million of persons without distinction of sex, with the result that the male rates yield a mortality of 14,237 per million and the female rates one of 11,753. Thus the true measure of excess of male mortality is 21 per cent., and not 14 (see Table XXXVIII.).

Table XXIII sets forth the causes of death which mainly account for the difference in mortality between the sexes. The excess of the mortality of males in infancy, and from phthisis, pneumonia and violence together amount to more than the total excess from all causes, which would have been 38 per cent. greater than it actually was but for the mortality of females from child-bearing and from cancer of the generative organs, causes peculiar or almost so to the female sex.

The excess in the mortality of males from all causes during the first year of life amounts to 0.761 per 1,000 living at all ages, or nearly half the total male excess.

Mortality at different Ages.—The fall in mortality during recent years applies to all ages, though in old age it is inconsiderable. Tables 13–15 enable the history of this fall to be traced at each age-period dealt with. They show that up to 35 years of age for males and to 45 for females the mortality of 1912 was at each period only one half to one third of that recorded 50 years ago (1861–65), but that after these ages the fall, though appreciable, has been comparatively slight.

Comparing 1912 with its more immediate predecessors the year of chief interest is 1910, which furnished the lowest mortality previously recorded. Comparison of the rates for the two years shows that the advantage of 1912 is almost confined to the first age-group dealt with, 0–5 years. The total mortality at all ages over 5 years was 11.00 in 1912 as against 10.75 in 1910, but this excess is more than wiped out by the fall at ages under 5 years, from 36.4 to 32.4 (Table 15).

As in 1911, the striking feature of Table 16 is the constancy with which the mortality of each sex in the North exceeds that of other parts of England and in all classes of area. The only exceptions to this rule are furnished by the rural districts of the Midlands, the mortality of which exceeded that of the North in both sexes at ages 20–25, and equalled it in the female sex at 15–20. Even if the mortality of London alone is compared with that of all areas, urban and rural together, of the North, the latter is everywhere in excess except for males of 25–65 and females of 35–55. In 1911 males of 35–55 formed the only exception.

The case of Wales is very different. Its general position is intermediate between those of the North and of the Midlands and South, but at ages 20–35 its mortality is heavier than that of the North. In 1911 this statement applied also to ages 15–20, at which in 1912 the mortality of females in Wales was equal to and that of males slightly less than the rate in the North, the similarity of the two years in regard to these comparisons being remarkable. If classes of area are distinguished as well as age, sex, and part of the country, we find that, in the 36 comparisons so instituted for each sex, mortality in the male sex is higher in the North in 30 cases and in Wales in three cases, the other three showing equality between the two. In the female sex the North is highest in 17 instances and Wales in 18, with one case of equality, but the standardized rate at all ages is appreciably higher in the North. As in 1911 it is in the rural districts that this excess of female mortality in Wales is most marked, applying in both years practically to all ages from 5 to 75. The corresponding excess of male mortality in the rural districts of Wales, noted in 1911, is much less marked in 1912, as excess over the North is confined to ages 20–35, though at 35–55 rural mortality of males in the two areas is equal. In 1911 the excess was widespread between ages 5 and 75.

The extent to which the excess of total mortality amongst the young women of Wales is due to their heavy death-rate from phthisis is shown in Table XXIV.

TABLE XXIV.—EXCESS OF MORTALITY OF FEMALES AT CERTAIN AGES IN WALES, 1911 AND 1912.

	Welsh excesses over the North of England.				Welsh excesses over England and Wales.					
	15–25.		25–45.		15–25.		25–45.		45–65.	
	1911.	1912.	1911.	1912.	1911.	1912.	1911.	1912.	1911.	1912.
All causes ... ..	.44	.36	.86	.52	.77	.72	1.44	1.09	1.44	1.35
Phthisis ... ..	.35	.09	.44	.22	.41	.21	.49	.28	.23	.19
Causes other than phthisis ... ..	.09	.27	.42	.30	.36	.51	.95	.81	1.21	1.16

It will be seen that the Welsh excess in mortality from all causes was due to phthisis in a much smaller degree in 1912 than in 1911, so it would seem probable that

the influences, whatever they may be, which cause young women in Wales to die from phthisis in undue proportion to their numbers lead also to excessive mortality from a number of other causes of death.

The lowest mortalities in Table 16 are furnished exclusively by the Midlands and South, except at ages over 85, at which Wales shows to considerable advantage. At other ages the mortality of males was on the whole somewhat lower in the Midlands, and of females in the South. The most favourable mortality for young children of both sexes is recorded by the South, and for the middle-aged of both sexes, but particularly males, by the Midlands. These statements are almost equally applicable to the year 1911 as to 1912, so it would seem that the differences noted may be characteristic of the populations concerned.

Infant Mortality.—Of the 486,939 deaths registered during the year in England and Wales, 82,779, or 17.0 per cent., were those of infants under one year of age, corresponding to a mortality rate of 95 per 1,000 births. This rate was 30 per 1,000 births, or 24 per cent., below the average in the preceding ten years, and 22 per 1,000 births, or 19 per cent., below that of 1906–10 (Table 6). It was the lowest rate on record, being 10 per 1,000 births below the lowest rate previously recorded, that for the year 1910, while during the nineteenth century the proportion of deaths had never been lower than 130 per 1,000 births. These facts illustrate the rapidity with which infant mortality has fallen in recent years in this as well as in most other European countries. The extent to which it is affected by diarrhoeal mortality is strikingly illustrated by comparison with the previous year. The summer of 1911 was exceptionally hot and dry, and the infant mortality of that year was 130, or 37 per cent. higher than that of 1912, when the summer was of quite the opposite type. Of this difference no less than 80 per cent. is accounted for by diminution in diarrhoeal mortality during the latter year, but the infant mortality from causes other than diarrhoea was also lower than that of any previous year, amounting to 87 deaths per 1,000 births, as against 92 in 1910, and 94 in 1911. It was only in 1909 that this rate for the first time fell below 100, and since then it has never reached that figure.

Table XXV shows how the infant mortality of 1912 was distributed between the sexes and throughout the country. For infants of both sexes jointly the rate varied from 113 in the county boroughs of the North to 66 in the rural districts of the South.

TABLE XXV.—INFANT MORTALITY (DEATHS UNDER 1 YEAR PER 1,000 BIRTHS), 1912.

	Males.					Females.					Both Sexes.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	100	—	100	—	—	82	—	82	—	—	91	—	91
County boroughs	124	119	93	122	120	100	93	72	101	96	113	107	83	111	108
Other urban districts	113	97	83	122	103	89	73	63	99	80	101	85	73	111	92
Rural districts	106	86	74	104	90	82	68	59	83	71	95	77	66	94	81
All areas	118	102	91	117	106	94	79	73	94	84	106	90	82	106	95

The fact that infant mortality is considerably higher under the conditions of town than of country life is well known, and the rate for the rural districts is exceeded accordingly by 14 per cent. in the case of the smaller towns, and by 33 per cent. in that of the county boroughs, but only by 12 per cent. in the case of London. The small excess in London shows to what a large extent the adverse influence of urban surroundings on infant life may be avoided. For each sex the mortality in the County of London, the central portion of the largest urban population in existence, was lower than that in the country at large—a very remarkable fact.

The feature of chief interest in the table indeed is not the variation of infant mortality with aggregation of population, but its geographical variation. In each sex and in every class of area the English mortality was highest in the North and lowest in South, the position of the Midlands being in all cases intermediate. Even the rural districts of the North record a higher rate than London does, their excess in the male sex being compensated by no advantage in the female. The general position of Wales is practically the same as that of the North of England, but in the case of the smaller towns infant mortality is at its maximum in Wales in both sexes.

The variations in infant mortality and its great excess in certain localities have recently formed the subject of a valuable report by the medical officer of the Local Government Board, in which the areas and causes of death concerned are dealt with individually. It is only by such detailed study, which cannot be attempted in this report, that the full significance of the figures can be appreciated; but none the less the yearly repetition of Table XXV. is likely to emphasize certain broad facts of mortality distribution which must always be borne in mind when the possibility and means of its further reduction are being considered. The urban excess is analysed by sex, age and cause of death in Table 30, and Tables 24-28 provide the means of investigating, in somewhat less detail, the causes of death which are accountable for the differences between the various geographical areas.

It is of interest to extend the comparison of infant mortality up to school age, *i.e.*, to the end of the period of exclusively home influence. This is done in Table XXVI, which gives the mortality during the second year of life, and the mean annual mortality between the ages of two and five years, in the different areas dealt with; and in Table XXVII, which shows the survivors from 10,000 births at the end of the first, second, and fifth years of life in the same areas. The range of variation in the second year of life is very much greater than in the first. It extends in Table XXVI from 12.42 in the rural districts of the South to 47.18 in the county boroughs of the North. In all parts of the country except the North, and the South at age 1-2 years, the mortality of the rural districts is less than half that of the county boroughs, in both sections of the table; and throughout the whole of the table mortality decreases regularly in all cases with decrease of urbanization.

TABLE XXVI.—MORTALITY in EARLY CHILDHOOD, 1912: DEATHS per 1,000 LIVING at EACH AGE (Both Sexes).

	1-2 years.					2-5 years. (Mean Annual Mortality.)				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	33.96	—	33.96	—	—	9.25	—	9.25
County boroughs	47.18	36.73	22.71	45.22	41.39	13.23	11.32	7.46	14.39	12.11
Other urban districts	35.05	21.88	16.75	38.93	27.55	10.46	6.64	5.60	11.12	8.27
Rural districts	24.41	16.64	12.42	20.92	17.92	7.31	5.20	3.66	5.76	5.37
All areas	39.51	25.09	24.47	34.60	30.61	11.40	7.71	7.08	10.04	8.96

Table XXVII exhibits the cumulative results of the mortalities shown in Tables XXV and XXVI. It shows that, judging by the experience of 1912, 19 per cent. of children born in the county boroughs of the North and of Wales may be expected to die before completing their fifth year, while in the rural districts of the South the proportion lost is only 9 per cent. or less than half the other. Outside London there is no class of area in the South which does not, judging by the experience of both 1911 and 1912, rear a larger proportion of its children than even the rural districts of the North.

TABLE XXVII*.—MORTALITY in EARLY CHILDHOOD, 1912: SURVIVORS of 10,000 CHILDREN BORN.

	At end of First Year.					At end of Second Year.					At end of Fifth Year.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	9,086	—	9,086	—	—	8,777	—	8,777	—	—	8,533	—	8,533
County boroughs	8,874	8,933	9,174	8,886	8,921	8,455	8,605	8,966	8,484	8,552	8,119	8,313	8,765	8,118	8,241
Other urban districts	8,990	9,147	9,268	8,891	9,081	8,675	8,947	9,113	8,545	8,831	8,403	8,769	8,960	8,260	8,612
Rural districts	9,054	9,229	9,336	9,064	9,192	8,833	9,075	9,220	8,874	9,027	8,639	8,933	9,119	8,721	8,882
All areas	8,940	9,098	9,180	8,943	9,052	8,587	8,870	8,955	8,634	8,775	8,293	8,665	8,765	8,374	8,539

* A note as to the construction of Tables XXVII and XXVIII will be found in the Annual Report for 1911, page xxxvi.

The comparison may be carried a stage further, as is done in Table XXVIII, by stating the combined effects of each population's fertility and early mortality, in other words, by showing the extent to which it produces and rears children. The result may be regarded as its effective fertility, and will give some indication of the extent to which success in preservation of young lives is likely to compensate for failure in their production.

The greatest effect of successful life preservation in compensating for its non-production is naturally shown by comparison of the county boroughs of Wales with the rural districts of the South, since these populations present the greatest contrast of any in Table XXVII. Table XXVIII shows that the birth-rate of the former was 26.9 as against 19.5 for the latter, but this difference would be reduced at age 5 to that between 21.9 and 17.8, the survivors per 1,000 population in each case. It may be judged therefore how little of the much greater deficit in the fertility of the present day as compared with that of thirty to forty years ago is likely to be made good in the near future by success in preservation of young lives. The effect of low mortality in compensating for low fertility was less in 1912 than in 1911, because the lower rates of infant mortality in the former year did not provide so great a range of difference in mortality as 1911 had exhibited.

The advantage in regard to birth-rate held by the large towns in the first section of Table XXVIII is still maintained, though to a diminished extent, when the age of five years is attained. The advantage in regard to fertility on the other hand is held on the whole by the rural districts (the higher birth-rates of the towns being accounted for by their higher proportions of women of conceptive age) and this advantage becomes gradually accentuated by their more favourable mortality experience.

TABLE XXVIII.—EFFECTIVE FERTILITY, 1912.*

	1.—Births per 100,000 Total Population.					2.—Births per 10,000 Women aged 15-45.					3.—Legitimate Births per 10,000 Married Women aged 15-45.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	2,468	—	2,468	—	—	918	—	918	—	—	1,985	—	1,985
County boroughs	2,581	2,542	2,086	2,693	2,518	1,000	991	790	1,109	977	1,959	1,955	1,654	2,099	1,930
Other urban districts	2,439	2,347	1,980	2,876	2,356	967	932	762	1,263	938	1,892	1,844	1,680	2,268	1,871
Rural districts	2,484	2,168	1,946	2,465	2,209	1,074	1,007	861	1,107	993	2,118	1,938	1,767	2,229	1,964
All areas	2,516	2,356	2,199	2,704	2,382	997	971	854	1,181	956	1,955	1,904	1,831	2,224	1,918
SURVIVORS OF ABOVE AT END OF FIRST YEAR OF LIFE.															
London	—	—	2,243	—	2,243	—	—	834	—	834	—	—	1,804	—	1,804
County boroughs	2,289	2,270	1,913	2,394	2,246	887	885	724	986	871	1,738	1,746	1,517	1,866	1,722
Other urban districts	2,193	2,148	1,835	2,557	2,139	869	853	706	1,123	852	1,701	1,687	1,580	2,016	1,699
Rural districts	2,248	2,001	1,818	2,233	2,030	972	929	804	1,003	913	1,917	1,789	1,650	2,019	1,805
All areas	2,249	2,144	2,019	2,417	2,156	891	884	784	1,056	865	1,748	1,733	1,681	1,988	1,736
SURVIVORS OF ABOVE AT END OF SECOND YEAR OF LIFE.															
London	—	—	2,167	—	2,167	—	—	806	—	806	—	—	1,743	—	1,743
County boroughs	2,181	2,187	1,970	2,286	2,153	845	852	708	941	835	1,656	1,682	1,483	1,782	1,651
Other urban districts	2,116	2,101	1,804	2,457	2,080	839	834	694	1,079	829	1,641	1,650	1,531	1,938	1,652
Rural districts	2,193	1,968	1,795	2,186	1,994	948	914	794	982	897	1,870	1,759	1,630	1,977	1,773
All areas	2,160	2,090	1,970	2,333	2,090	856	862	765	1,019	839	1,679	1,690	1,640	1,919	1,683
SURVIVORS OF ABOVE AT END OF FIFTH YEAR OF LIFE.															
London	—	—	2,107	—	2,107	—	—	784	—	784	—	—	1,695	—	1,695
County boroughs	2,094	2,113	1,828	2,187	2,075	811	823	692	900	805	1,590	1,625	1,450	1,705	1,591
Other urban districts	2,050	2,059	1,774	2,375	2,028	813	817	682	1,043	808	1,590	1,617	1,505	1,873	1,611
Rural districts	2,145	1,937	1,775	2,148	1,962	927	900	785	965	883	1,829	1,732	1,612	1,943	1,744
All areas	2,086	2,042	1,928	2,263	2,034	827	842	749	988	817	1,622	1,651	1,605	1,861	1,638

* The rates of mortality at ages 1-5 employed in the third section of this table are those applicable to all children without distinction of legitimacy, as the mortality of legitimate children is not separately tabulated except during the first year of life. The consequent error, however, is probably very small. See Annual Report for 1911, Table XXXIII.

It may be noted that the disadvantage of 1912 as compared with 1911 in the upper section of the above table, referred to on page xxi, is with few exceptions converted into an advantage in the second section, there being more survivors at the expiry of the first year owing to the effect of the diminished birth-rate being outweighed by that of diminished infant mortality. The only cases in which this is not so are the county boroughs of Wales and the rural districts of England and Wales, and of the Midlands and South, but the recovery in Wales is not maintained, as at the end of the fifth year the 1912 table once more shows fewer survivors.

One of the most striking features of Table XXVIII is the extent to which the fertility of Wales, however stated, exceeds that of England. The survivors at age 5 in Wales exceed the births in the South of England in each section of the table, and the smaller towns of Wales more nearly approximate to the old-fashioned standard of birth-rate than any other of the sections of the population dealt with.

Causes of Infant Mortality.—All the principal causes of infantile deaths, as summarized in Table XXIX, except infectious diseases, show a reduction in mortality in 1912 as compared with the previous year, as well as with the average of the five preceding years. In the case of diarrhoea and enteritis the reduction is very large, but it is substantial in the case of other causes also, particularly tubercle. The reduction from 1.49 deaths from abdominal tuberculosis per thousand births to 0.99 and from 3.81 deaths from all tuberculous diseases to 2.81 in a single year is even more remarkable than the fall in diarrhoeal mortality, since in this case there is no obvious climatic explanation to account for it. Possibly in a year of heavy diarrhoeal mortality the records of death from abdominal tuberculosis are to some extent swollen by misdescription of deaths properly assignable to diarrhoea, but it is to be noted that during recent years, as will be seen from Table XXX, the fall in infant mortality assigned to tubercle has been rapid

TABLE XXIX.—ENGLAND AND WALES, 1912.—PERCENTAGE INCREASE OR REDUCTION OF INFANT MORTALITY as compared with 1907-11 and with 1911.

	Under 1 month.		1-3 months.		3-6 months.		6-9 months.		9-12 months.		Under 1 year.	
	1907-11.	1911.	1907-11.	1911.	1907-11.	1911.	1907-11.	1911.	1907-11.	1911.	1907-11.	1911.
Whooping cough ...	—	+ 9	+ 7	+24	- 1	+10	- 1	+ 7	- 1	+ 5	+ 1	+10
Other common infectious diseases.	—	—	-12	-22	+ 9	—	+ 8	- 6	+ 4	-12	+ 5	- 9
Diarrhoea and enteritis ...	-29	-60	-51	-73	-61	-80	-66	-84	-63	-82	-59	-79
Premature birth ...	- 1	- 2	- 9	-11	- 5	—	—	-25	—	-50	- 1	- 2
Congenital defects...	-17	—	-15	- 1	-19	- 8	-26	-18	-17	- 9	-17	- 1
Atrophy, debility, marasmus	- 4	-13	-25	-24	-31	-27	-24	-22	-30	-30	-16	-19
Developmental and wasting diseases.	- 4	- 4	-20	-18	-23	-23	-24	-22	-27	-27	- 9	- 9
Tuberculous diseases ...	-43	-20	-35	-22	-38	-30	-29	-22	-31	-29	-33	-26
Convulsions ...	-14	- 4	-27	-15	-25	-19	+ 6	-16	+13	-19	-16	-12
Bronchitis and pneumonia	+ 4	+ 9	- 6	+ 1	-13	- 1	-13	- 3	-11	- 6	-10	- 1
Other causes ...	+12	+ 5	- 7	- 1	-22	-12	-33	-15	-35	-20	-14	- 6
All causes ...	- 4	- 5	-22	-29	-32	-43	-28	-40	-23	-35	-19	-27

TABLE XXX.—ENGLAND AND WALES.—INFANTILE MORTALITY FROM TUBERCULOSIS, 1902-1912.

	1902-1906.	1907.	1908.	1909.	1910.	1911.	1912.	1902-1906.	1907.	1908.	1909.	1910.	1911.	1912.
	Under 3 Months.							3-6 Months.						
Abdominal Tuberculosis	.51	.36	.35	.33	.30	.27	.21	.86	.60	.66	.55	.56	.51	.32
Tuberculous Meningitis	.13	.13	.13	.09	.07	.10	.09	.40	.36	.39	.36	.32	.32	.26
Other Tuberculous Diseases	.27	.22	.21	.16	.15	.13	.09	.48	.36	.41	.28	.28	.28	.20
All Tuberculous Diseases	.91	.71	.69	.58	.52	.50	.39	1.74	1.32	1.46	1.19	1.16	1.11	.78
6-12 Months.							Under 1 Year.							
Abdominal Tuberculosis	1.07	.75	.82	.71	.69	.71	.46	2.44	1.71	1.83	1.59	1.55	1.49	.99
Tuberculous Meningitis	1.04	.96	.95	.90	.92	.82	.71	1.57	1.45	1.47	1.35	1.31	1.24	1.06
Other Tuberculous Diseases	.87	.80	.73	.62	.62	.67	.47	1.62	1.38	1.35	1.06	1.05	1.08	.76
All Tuberculous Diseases	2.98	2.51	2.50	2.23	2.23	2.20	1.64	5.63	4.54	4.65	4.00	3.91	3.81	2.81

and almost uninterrupted. The total mortality so ascribed in 1912 was almost exactly one-half that returned eight years earlier (1902-06) and not much more than one-third of the rates prevalent during the latter part of last century. The fall has not been quite so great in the case of tuberculous meningitis as of other forms of the disease, nor in the second as in the first six months of life, but it is very heavy in all cases. The very rapidity of the decline suggests the possibility that it may be in part at least due to declining vogue of tubercle as a form of return for the deaths of infants rather than to its diminishing prevalence as a cause of their mortality, but it must suffice here to call attention to the changes in the figures as certified.

The possibility, referred to above, that other headings than diarrhoea were affected by the abnormally hot summer of 1911 is exemplified by the course of mortality ascribed to "atrophy, debility, and marasmus." Table XXXI shows the steady downward trend of mortality attributed to this cause, which may also be seen in Table 20. In 1911 the infant mortality so ascribed was however actually higher than the average for the five preceding years, but in 1912 this rise was succeeded by a fall to the minimum hitherto attained. Similarly in other recent years succeeding seasons of high diarrhoeal mortality the drop in mortality from "atrophy" has generally been more than usually marked. It seems probable that this is at least partly due to vague description in certain cases of deaths due to the effects of summer diarrhoea. If in search of confirmation of this surmise we turn to the return of deaths in separate quarters of the year on page 306 the quest is at first sight disappointing since it reveals the fact that mortality from this cause (151 B-E) was at its minimum in the third quarter of 1912 in all the classes of area dealt with. This year however was one of very low diarrhoeal mortality, and infant mortality in general was, no doubt largely because of this fact, at its lowest in the third quarter. Fortunately the quarterly record of deaths from individual causes is available, though unpublished, for 1911 also. It shows that accompanying the high diarrhoeal mortality of the third quarter of that year there was a mortality from infantile atrophy considerably higher than that of any of the other three quarters. The total deaths of infants from atrophy were as follows:—First quarter, 3,504; second, 2,928; third, 4,131; and fourth, 3,448. In all four classes of area and for each sex in all of them the deaths were most numerous in the third quarter. So complete a contrast with the seasonal distribution of a year of light diarrhoeal mortality seems to point very strongly to the return under atrophy of deaths directly or indirectly due to epidemic diarrhoea.

TABLE XXXI.—ENGLAND AND WALES.—DEATHS OF CHILDREN under ONE YEAR of AGE from DEVELOPMENTAL and WASTING DISEASES per 1,000 BIRTHS, 1886-1912.

	Sex.	Proportion of Deaths to 1,000 Births of each Sex.						
		1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906-1910.	1911.	1912.
Premature birth (151A) ...	Males	17.8	20.3	21.7	22.4	22.0	22.1	21.7
	Females	14.4	16.4	17.5	18.1	17.8	18.0	17.4
	Both sexes	16.1	18.4	19.6	20.2	19.9	20.1	19.6
Congenital defects (150 and 152B) ...	Males	3.5	3.9	4.3	6.4	7.3	5.9	5.9
	Females	2.9	3.3	3.5	5.0	5.9	4.8	4.7
	Both sexes	3.2	3.6	3.9	5.7	6.6	5.4	5.3
Atrophy, Debility, Marasmus (151 B-E).	Males	24.9	25.0	23.9	20.8	17.5	17.7	14.7
	Females	20.6	20.3	19.3	16.6	13.7	14.1	10.9
	Both sexes	22.8	22.7	21.7	18.7	15.6	15.9	12.9
Total: Developmental and wasting diseases.	Males	46.2	49.2	49.9	49.6	46.8	45.7	42.3
	Females	37.9	40.0	40.3	39.7	37.4	36.9	33.0
	Both sexes	42.1	44.7	45.2	44.6	42.1	41.4	37.8

Table XXXI has been continued from the Annual Report for 1909, the figures for the years 1886-1910 having been made comparable with those for 1911 and 1912. It is encouraging to find from this table that the diminution of mortality from "atrophy" is not counter-balanced in 1912, as has been very largely the case in the past, by increase in that from premature birth and congenital defects. It has been pointed out in previous reports that the mortality from the three headings in combination remained almost stationary, the inference being that the increases recorded for premature birth and

congenital defects represented transfer from "atrophy." Fortunately however these steady increases appear now to be checked, so the continued diminution in atrophy need no longer be discounted in this way.

Table XXXII, which contrasts the mortality of male with that of female, and of legitimate with that of illegitimate infants, shows that the mortality of males was 26 per cent. greater than that of females, and that all the principal causes of death except whooping cough display the same feature, and on the whole to a very uniform extent. The excess in the mortality of males was greatest in the second and third months of life, regularly decreasing thereafter. All these features of the table—excess in male mortality of about 25 per cent. from all causes and from the principal groups of causes, excess of female mortality from whooping cough, and the decrease with advancing age of the excess in male mortality—reproduce themselves with curious fidelity from year to year. The proportionate male excess was less in the case of illegitimate infants, as it has been in (at least) each of the past 5 years.

The table also shows that the mortality of illegitimate infants was about twice as great as that of the legitimate, rather less in the case of males and rather more in that of females. This excess was highest (145 per cent.) in the second three months of life for males and at one to three months for females, and thereafter fell to about 50 per cent. in the last three months of the first year.

TABLE XXXII.—ENGLAND AND WALES, 1912: INFANT MORTALITY by SEX and LEGITIMACY.

	Deaths per 1,000 Births.						Mortality per cent.					
	All Infants.		Legitimate Infants.		Illegitimate Infants.		Male of Female Infants.			Illegitimate of Legitimate Infants.		
	Male.	Female.	Male.	Female.	Male.	Female.	All Infants.	Legitimate.	Illegitimate.	Male.	Female.	
All causes	under one month ...	43·47	33·21	42·10	31·80	74·37	64·53	131	132	115	177	203
	1-3 months ...	20·36	14·80	19·33	13·93	43·20	34·17	138	139	126	223	245
	3-6 " ...	16·24	13·34	15·29	12·61	37·40	29·61	122	121	126	245	235
	6-9 " ...	13·65	11·27	13·18	10·83	24·01	21·02	121	122	114	182	194
	9-12 " ...	11·91	11·02	11·66	10·78	17·31	16·41	108	108	105	148	152
	Total under one year ...	105·63	83·64	101·56	79·95	196·29	165·74	126	127	118	193	207
All ages under one year.	Whooping cough ...	4·19	4·97	4·18	4·97	4·45	4·83	84	84	92	106	97
	Other common infectious diseases.	3·50	2·92	3·47	2·86	4·18	4·18	120	121	100	120	146
	Diarrhoea and enteritis	8·87	6·52	8·33	6·03	20·82	17·33	136	138	120	250	287
	Premature birth ...	21·73	17·42	21·26	16·87	32·27	29·44	125	126	110	152	175
	Congenital defects ...	5·92	4·66	5·84	4·61	7·69	5·65	127	127	136	132	123
	Atrophy, debility and marasmus.	14·73	10·92	13·78	10·20	35·83	26·89	135	135	133	260	264
	Developmental and wasting diseases.	42·38	33·00	40·88	31·68	75·79	61·98	128	129	122	185	196
	Tuberculous diseases ...	3·08	2·55	2·93	2·41	6·38	5·54	121	122	115	218	230
	Convulsions ...	9·81	7·13	9·44	6·77	18·10	14·99	138	139	121	192	221
	Bronchitis and pneumonia.	19·88	15·84	19·45	15·43	29·55	24·94	126	126	118	152	162
	Other causes ...	13·92	10·71	12·88	9·80	37·02	31·95	130	131	116	287	326
	All causes ...	105·63	83·64	101·56	79·95	196·29	165·74	126	127	118	193	207

The excess in mortality of illegitimate children varied greatly also for different causes of death. It was very slight for infectious disease in general (Table 29) and practically disappears in the case of whooping cough. It was also slight in the case of deaths from congenital defects, and only moderate for bronchitis and pneumonia, but heavy for diarrhoea and atrophy.

The mortality of illegitimate exceeds that of legitimate infants most of all in the case of deaths attributed to syphilis, being over seven times as heavy (Table 29). Probably there is much less reluctance to certify the true cause of death in such cases for illegitimate infants, but the difference is greater than could well be explained in this way, and it is, moreover, of a nature to be expected from the circumstances of the case. Fatal injury at birth is very much commoner with illegitimate infants. No doubt many of the confinements take place under disadvantageous circumstances.

Table 30 compares towns of various sizes and rural districts in respect of infant mortality. These effects are summarised by comparison of the death-rate from each cause in the urban areas as a whole and in the rural areas. The total mortality in the former exceeded that in the latter by 22 per cent., but this excess was very unevenly distributed over the different age-periods into which the first year of life is divided in the table, being only 3 per cent. in the first month, 23 per cent. at 1-3 months, 41 at 3-6, 45 at 6-9, and 57 per cent. at 9-12 months. The chances of survival seem to differ but little at birth in town and in the country, but the noxious influences of the former soon come into play, and make themselves felt to an increasing extent as the first year of life progresses.

When comparison is made between towns of varying size it is seen that apart from London, those of larger size are at a disadvantage at every age, in the case both of legitimate and illegitimate infants. The London rate, however, was lower than that of the smaller towns. This is due mainly to the low mortality in London during the first month of life, which, as also in 1911, was below that even of the rural districts. After the first month London comes between the county boroughs and the smaller towns, as it may be seen from Table XXVI to do also during the succeeding four years of life.

Apart from the special case of London, Table 30 shows that the mortality from each of the five groups of diseases under which it summarises infantile deaths increases regularly from the rural areas to the large towns, but the difference in the case of the wasting diseases is small. This statement applies also to each quarter of the first year of life, except that in the case of the infectious diseases the order of mortality appears to be reversed during the first three months, the rate being highest in the rural districts and lowest in London. This feature of the table harmonises with the fact that, as pointed out on page lxi a larger proportion of fatal whooping cough occurs during the first year of life in the rural than in the urban districts (*see* also page lxi in regard to measles).

Comparison of individual diseases in town and country shows that measles, whooping cough, and diphtheria followed the usual rule of urban excess, the excess being very great in the case of measles and slight in that of whooping cough. The mortality from convulsions in London was less than half that in the rest of the country. This accords with what was said in the Report for 1911 as to evidence of superiority of certification in London, for it has often been pointed out that this indefinite form of certificate, which continues to show a most satisfactory decline in frequency of use (Table 20), is one which should be used only when the condition causing the convulsions cannot be ascertained. Similarly it is perhaps not without significance that while tubercle of organs other than the intestine and peritoneum was more fatal in London than in any other class of area, "abdominal" tuberculosis was less fatal in London than even in the rural districts. For there is no doubt that the term "tabes mesenterica" at least has been loosely used to cover disease not all of which was due to tubercle, and it may be that this looseness has to some extent survived the gradual disuse of the term with which it was especially associated (*see* page 38). Another instance of the same kind is furnished by the relative mortality of bronchitis and pneumonia in London and other parts of the country. Reasons were given in the Report for 1909 (pages lxix.-lxxi.) for believing that, especially in former years, many deaths from pneumonia were erroneously ascribed to bronchitis. Table 30 shows that as far as deaths of infants are concerned, the reform which is taking place in regard to this matter has proceeded further in London than elsewhere.

The harmful effect of town life is well marked in regard to the respiratory diseases, but it is especially evident in the case of diarrhoea, the mortality from which in London was more than twice that in the rural districts. Syphilis shows an even greater variation with urban conditions, the mortality in the country districts, whether of legitimate or illegitimate children, being only a small fraction of that returned in the great towns. It is most fatal in the first month, and thereafter progressively less so. Another cause of infant mortality particularly associated with the great towns is overlying, which caused more than four times as many deaths in London as in the rural districts. The mortality from congenital malformations, premature birth, and atrophy debility and marasmus, differs but little, as already remarked, in the various classes of area.

Centenarians.—Among the deaths registered during the year there were 67 of reputed centenarians, 17 of whom were males and 50 females. In the preceding three years the numbers were 61, 65, and 63 respectively.

Mortality at Individual Years of Age.—Deaths of males and females during 1912 at each year of age up to 100 are tabulated on page 175. The females whose deaths were registered during the year are there distinguished as single, married, or widowed, but

the registers do not afford this information with regard to males. Table XXXIII and Diagram II afford the means of comparing the regularity of distribution of the deaths registered during the three years 1910-1912 with that of the census returns of population as graphically represented in Diagrams XV and XVII of the seventh volume of the Report on the census of 1911. It will be seen that the errors of statement of age referred to in that report as the errors of "round numbers" and of "even numbers" are both very evident also in the mortality returns, though their extent here is not so great as in the census figures. The error of round numbers results from the tendency to return 30, 40, &c., or to a lesser degree 35, 45, &c., as the age when it is actually only within a year or two of these "round" numbers, and the error of even numbers expresses the preference of the public, for whatever reason, for ages evenly divisible by two. Thus if, in Diagram II, we select those years of age at which there is for both sexes an apparent overstatement of deaths as indicated by convexities of the curves, we find these to be as follows:—30, 32, 38, 40, 42, 45, 50, 52, 54, 56, 58, 60, 62, 65, 68, 70, 72, 74, 78, 82. All of these except 45 and 65, accounted for as "round numbers," are even numbers. There is not, however, the same differential preference for even numbers ending in 8 as was noticed in the population returns. The absence of age 55 from the above list of preferred ages is very remarkable. Instead of an elevation at this point the diagram shows a very definite depression, statement of age at death in the "fifties" following the rule of even numbers strictly. As was pointed out in last year's Report, the same difference between age 55 on the one hand and ages 45 and 65 on the other characterises the census table of ages for each sex, though in that case it is not so strongly marked.

TABLE XXXIII.—ENGLAND AND WALES.—DEATHS at each YEAR of AGE in the THREE YEARS 1910-1912.

Age.	Males.	Females.	Age.	Males.	Females.	Age.	Males.	Females.
All Ages	771,760	726,236	33	4,465	4,110	67	10,839	10,240
0	164,033	127,925	34	4,807	4,332	68	11,743	11,268
1	41,577	38,288	35	5,167	4,386	69	11,868	11,202
2	15,916	15,598	36	5,230	4,504	70	12,125	12,542
3	9,639	9,387	37	5,070	4,653	71	11,029	11,811
4	6,895	6,732	38	5,538	5,144	72	11,973	13,248
5	5,604	5,476	39	5,635	5,089	73	11,196	12,686
6	4,116	4,112	40	5,993	4,998	74	11,066	12,464
7	3,141	3,160	41	5,299	4,536	75	10,359	12,015
8	2,589	2,639	42	6,259	5,520	76	9,765	11,576
9	2,270	2,263	43	5,885	5,080	77	8,919	10,751
10	2,180	2,126	44	5,918	5,180	78	8,770	10,620
11	2,013	1,956	45	6,783	5,468	79	7,851	9,687
12	1,851	1,943	46	6,545	5,459	80	7,159	9,530
13	1,897	2,178	47	6,792	5,609	81	6,131	8,004
14	2,103	2,353	48	7,131	6,233	82	5,980	8,135
15	2,318	2,495	49	7,524	6,308	83	5,089	7,117
16	2,623	2,634	50	7,970	6,360	84	4,761	6,653
17	2,960	2,729	51	6,993	5,822	85	3,892	5,679
18	3,069	2,848	52	8,239	6,807	86	3,330	4,913
19	3,325	2,859	53	7,877	6,720	87	2,683	4,216
20	3,319	2,914	54	8,605	7,047	88	2,095	3,347
21	3,277	3,169	55	8,266	6,705	89	1,665	2,726
22	3,385	3,017	56	9,065	7,700	90	1,273	2,187
23	3,400	3,270	57	8,740	7,474	91	958	1,735
24	3,406	3,399	58	9,441	8,072	92	738	1,394
25	3,481	3,345	59	9,603	8,113	93	524	981
26	3,645	3,464	60	10,416	8,720	94	307	668
27	3,702	3,616	61	9,556	8,035	95	219	490
28	3,962	3,664	62	10,385	9,059	96	188	364
29	3,931	3,817	63	10,505	9,153	97	93	246
30	4,193	3,934	64	10,674	9,683	98	49	160
31	4,020	3,757	65	11,511	10,201	99	37	103
32	4,604	4,187	66	10,698	9,806	100 and over.	57	138

DIAGRAM II.—ENGLAND AND WALES.—DEATHS at EACH YEAR of AGE in the THREE YEARS, 1910-12.

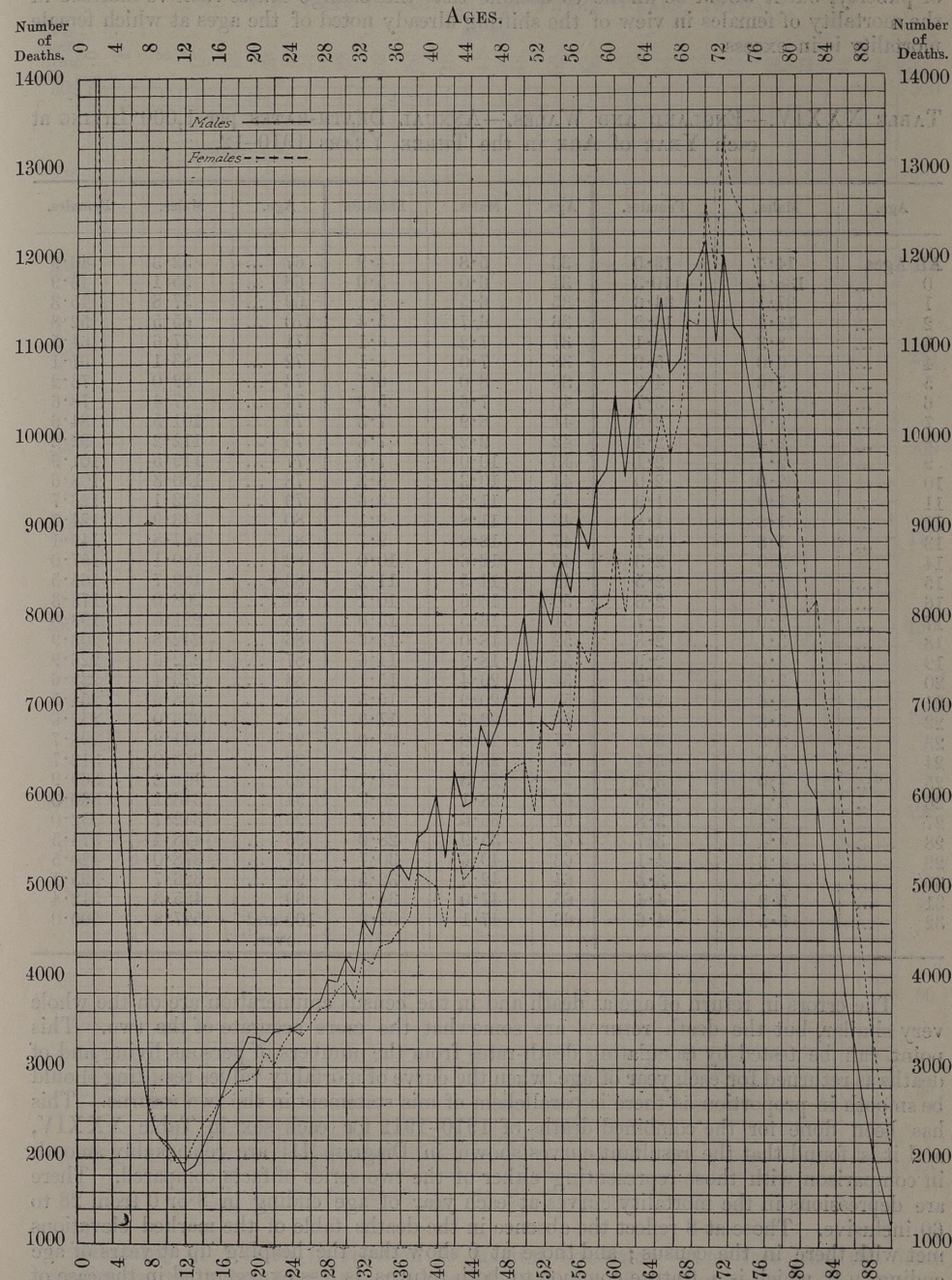


Diagram II shows that at ages under 70 the numbers of male deaths are generally in considerable excess of those of females, but that from 70 onwards the relationship is reversed, the excess of females in the population being so great that even though their mortality at each year of life almost up to 94 (when owing to the smallness of the numbers concerned the rates become very irregular) is shown in Table XXXIV to be below that of males, the absolute number of deaths is greater. The period of childhood during which the mortality of girls exceeds that of boys, the changes in which in the course of years have been already described (page xxxvii.), is represented in the table by excess of deaths of females, sufficient to be clearly seen in Diagram II, at ages 12-15. As the numbers of the sexes in the population are very nearly equal at these ages the mortality of females is seen

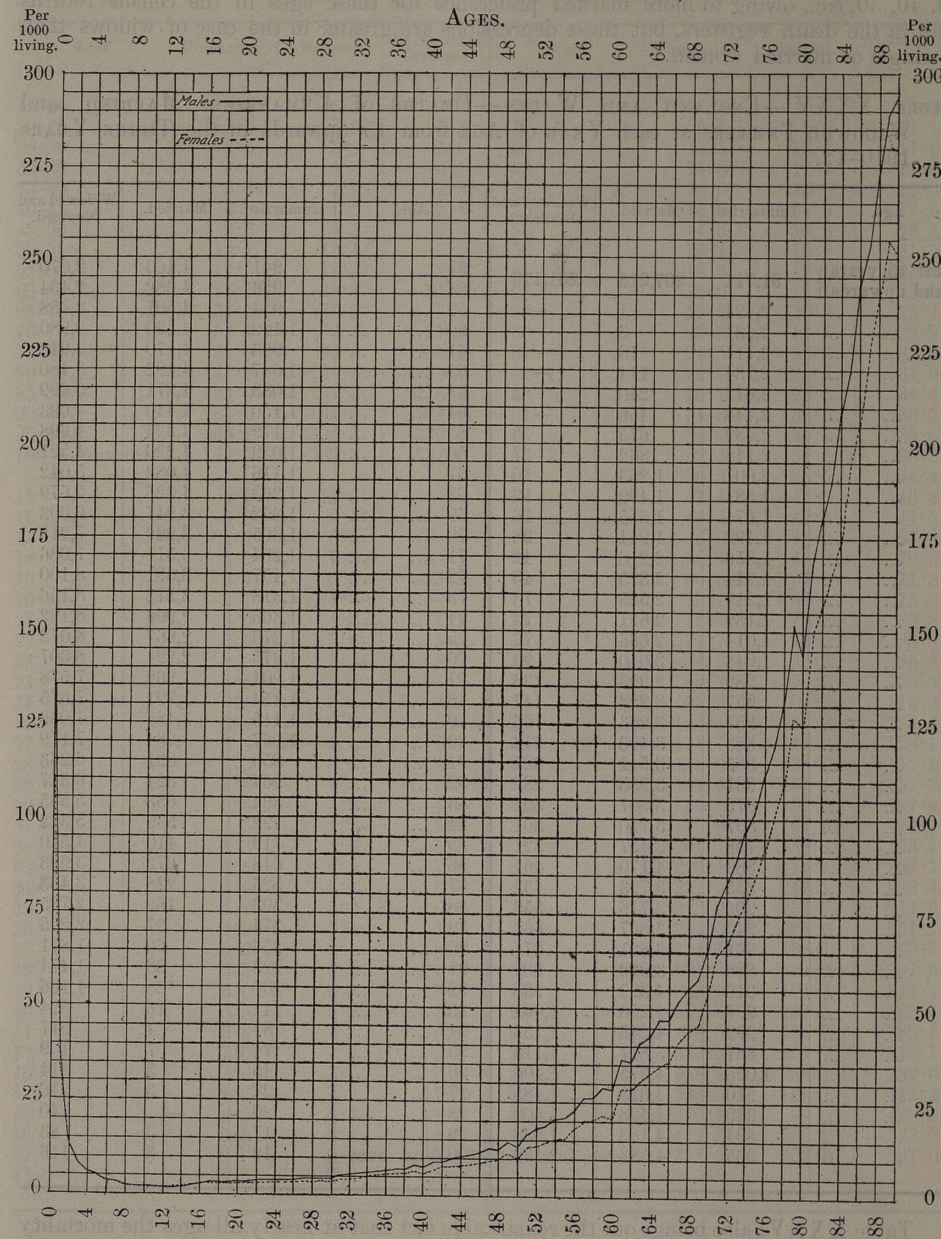
in Table XXXIV and Diagram III to be in excess at almost the same ages—13 to 15 inclusive. It is of interest to note that this age very nearly represents the onset of puberty, but it would be unsafe to assume that this change causes relative increase in the mortality of females in view of the shifting already noted of the ages at which female mortality is in excess.

TABLE XXXIV.—ENGLAND AND WALES.—ANNUAL DEATH-RATES per 1,000 LIVING at each YEAR of AGE in the THREE YEARS 1910-12.

Age.	Males.	Females.	Age.	Males.	Females.	Age.	Males.	Females.
All Ages	14.7	13.0	33	5.8	4.9	67	52.3	40.9
0	138.4	110.3	34	6.0	5.0	68	55.1	43.9
1	37.1	34.6	35	6.5	5.1	69	57.8	45.3
2	13.4	13.2	36	6.7	5.4	70	65.5	52.8
3	8.3	8.1	37	7.2	6.1	71	77.6	64.5
4	6.0	5.9	38	7.0	6.1	72	83.1	67.1
5	5.0	4.9	39	8.0	6.7	73	89.0	73.2
6	3.7	3.7	40	7.6	5.9	74	97.4	78.6
7	2.8	2.8	41	8.9	7.3	75	101.5	84.6
8	2.4	2.4	42	9.2	7.6	76	112.2	92.2
9	2.1	2.1	43	10.0	7.8	77	119.5	101.9
10	2.0	2.0	44	10.3	8.3	78	130.8	108.6
11	1.9	1.9	45	11.2	8.6	79	152.1	126.7
12	1.8	1.8	46	11.8	9.1	80	143.9	124.7
13	1.8	2.1	47	12.8	9.7	81	167.8	149.1
14	2.0	2.3	48	12.6	10.0	82	180.1	157.0
15	2.3	2.5	49	14.5	11.2	83	189.7	165.5
16	2.6	2.6	50	13.6	10.1	84	208.0	173.3
17	3.0	2.7	51	16.5	13.0	85	221.0	193.8
18	3.1	2.8	52	18.0	13.6	86	242.8	203.9
19	3.4	2.9	53	18.9	14.6	87	252.6	226.9
20	3.6	2.9	54	20.4	15.1	88	273.4	239.6
21	3.6	3.2	55	20.9	15.5	89	288.9	254.5
22	3.8	3.0	56	22.7	17.9	90	293.0	251.6
23	3.8	3.2	57	26.0	20.0	91	344.9	298.7
24	3.8	3.4	58	26.3	20.1	92	363.9	312.7
25	4.0	3.3	59	28.8	21.7	93	442.2	369.9
26	4.1	3.5	60	28.1	20.7	94	348.1	360.3
27	4.4	3.8	61	36.6	27.9	95	342.7	352.0
28	4.4	3.7	62	35.9	28.0	96	478.4	374.5
29	4.6	4.1	63	40.6	30.7	97	378.0	420.5
30	4.5	3.8	64	42.5	32.5	98	326.7	395.1
31	5.2	4.4	65	47.0	34.7	99	425.3	512.4
32	5.5	4.6	66	47.1	35.8	100 and over.	527.8	500.0

The errors in return of age at death and in the census enumeration are on the whole very similar, but the death returns are somewhat the more accurate of the two. This point can be tested by calculating death-rates from the numbers of persons living and of deaths as returned for each year of age, when the curve of mortality values resulting should be smooth in proportion as there is parallelism of mis-statement in the two returns. This has been done for the combined deaths of 1910-1912 for each sex in Table XXXIV, and it is found that the resultant curves shown in Diagram III are remarkably smooth in comparison with those representing either of the two series of facts compared. There are depressions in the mortality curves at each year of age ending in 8 or 0 from 28 to 60 inclusive. Those at 8 reflect the absence in the deaths table of the marked elevations met with there in the census; and those at 0 show that the heaping up at years of age ending in 0, which is a feature common to both returns, is less exaggerated in the case of the deaths. The resultant smaller proportion of deaths to lives at risk at these ages causes of course a depression in the mortality curve at each of them.

DIAGRAM III.—ENGLAND AND WALES.—ANNUAL DEATH-RATES per 1,000 LIVING at EACH YEAR of AGE in the THREE YEARS, 1910-12.



Mortality of Women in relation to Marital Condition.—The fact that the death registers contain information as to the marital condition of deceased women, though not of men, has rendered it possible to prepare Tables XXXV and XXXVI.

The first of these gives the deaths of single, married, and widowed women at each year of age from fifteen onwards during the three years 1910-1912. In the figures relating to each of the three groups the same characteristic mis-statements can be traced as in those for women (and men) as a whole. Thus there is the same preference for ages ending in even numbers and the same avoidance of age 55 in contrast to preference for 45 and 65 over the years of age immediately adjoining.

Comparison of the accuracy of statement of age in the three conditions would probably require the preparation of graduated tables by actuarial methods, but it may be seen from Table XXXVI, which gives the mortality at each year of age in the three conditions from the ungraduated returns of population and of deaths, that the death-rates of

quinquennia of age from 15 on. In the light of these figures it is not surprising that the total mortality of young married women should exceed that of spinsters of the same ages.

From age 44-45, at which the mortality of the single first exceeds that of the married, till old age is reached, there is not much difference between the mortality of married and single women in England, but after age 80 there appears to be a very decided difference in favour of the married. This appears the more remarkable in view of the probability, pointed out by Mr. George King, F.I.A. (Census 1911, vol. VII, page xlvi), that the census returns of the single at advanced ages are overstated by reason of the mis-description as single of a number of married and widowed women. It would therefore seem that in extreme old age the mortality of single is very much in excess of that of married women, or else that the misdescription referred to applies to the death registers as much as, or more than, to the census returns.

Mortality in Town and Country.—Table XXXVII. states both in the crude and in the standardized form, the annual rates of mortality at all ages and from all causes in the four groups of areas employed in this Report for the year 1912 and in England and Wales for 1911 and for the preceding quinquennium as well.

TABLE XXXVII.—MORTALITY FROM ALL CAUSES PER MILLION POPULATION, 1906-10, 1911 and 1912.

		1906-10.	1911.	1912.					
		England and Wales.		England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
Males	{ Crude rates ...	15,636	15,580	14,120	15,229	15,922	13,150	12,726	14,571
	{ Standardized rates	15,407	15,337	13,790	15,242	16,420	13,147	10,878	14,752
Females	{ Crude rates ...	13,809	13,672	12,512	12,593	13,600	11,938	11,954	12,702
	{ Standardized rates	13,516	13,343	12,094	12,415	13,988	11,685	10,158	12,706
Persons	{ Crude rates ...	14,692	14,595	13,290	13,832	14,712	12,523	12,340	13,597
	{ Standardized rates	14,431	14,307	12,914	13,782	15,164	12,392	10,506	13,695

Standardization on the 1901 basis slightly reduces the death-rate of the whole country, since the constitution of its population in 1912 was less favourable to low mortality than in 1901. The effect upon London and the smaller urban districts is slight, but the mortality of the county boroughs is increased by three per cent., and that of the rural districts diminished by 15 per cent., the contrast between them being thus greatly increased.

TABLE XXXVIII.—RATIO PER CENT. OF TOTAL MORTALITY OF MALES AT EACH AGE GROUP TO THAT OF FEMALES AT THE SAME AGE GROUP; 1912.

	England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
0- ...	120	119	119	121	122	120
5- ...	101	109	99	103	94	102
10- ...	93	108	91	89	95	92
15- ...	105	118	108	107	91	109
20- ...	115	137	118	112	104	118
25- ...	117	141	124	110	105	121
30- ...	120	141	132	110	101	124
35- ...	120	137	126	115	107	123
40- ...	128	141	135	122	115	131
45- ...	130	140	139	121	120	132
50- ...	132	148	141	128	114	137
55- ...	131	149	134	131	117	136
60- ...	133	149	137	130	123	136
65- ...	128	141	129	133	119	132
70- ...	123	134	128	124	116	127
75- ...	118	130	123	119	113	122
80- ...	115	120	119	110	120	114
85 and upwards ...	108	101	110	106	112	106
All Ages (standardized).*	121	130	124	120	115	123

* See note p. xxxvii.

Table XXXIX. gives the mortalities of the various sex- and age-groups from which the standardized rates in Table XXXVII. are calculated; and Table XXXVIII. compares the mortality of the two sexes for the same ages and populations. It shows that the ratio of male to female mortality is lowest for all classes of area in later childhood and highest in later adult life, decreasing in extreme age. The proportional as well as the actual excess of male mortality is least in the rural districts and increases with urbanization to a maximum in London, where even at ages 10-15, the death-rate is distinctly higher in the male sex. Evidently urban conditions of life tell more severely on males than on females. Table 16 shows that the excess of mortality amongst males is much lower in Wales than in England in all classes of area.

Outside the metropolis mortality in general increases in proportion to urbanization, but the mortality of London is intermediate between that of the county boroughs and of the smaller urban districts and in the case of females is even slightly lower than that of urban districts as a whole.

The differences between the four groups of areas may be further studied by comparing their mortalities at different ages, as is done in Diagram IV. This is derived from Table XXXIX. by taking the mortality of the whole country at each age as one hundred, and plotting that of each group at the same age higher or lower on the scale in proportion as it exceeds or falls short of this standard.

It will be seen that, speaking generally, the same order of mortality prevails amongst the four classes of area at the several age-periods as at all ages jointly. The curves start wide apart in early childhood but rapidly approximate or in some instances even overlap considerably in early adult life, diverge very widely indeed in middle life, and approximate very closely in extreme old age. This holds good of each sex, but the overlapping in early adult life is most marked in the case of females and the divergence at middle age in that of males.

Comparison of this diagram with the similar one in the Report for 1911 shows that all their main features are identical, although the climatic conditions of the two years were widely different. Even such small points as the greater relative advantage of female infants in the rural districts and the exceptionally favourable mortality experience of females aged 70-80 years in London are common features of both diagrams. The reduction in London of mortality in early adult life and its elevation in the rural districts at about the same ages are very similar indeed in the two years, and the explanation suggested for 1911—that this feature is due to the deaths in their country homes of many young persons enumerated at the census in London and stricken there with fatal disease, particularly tubercle—is equally applicable to 1912.

TABLE XXXIX.—MORTALITY FROM ALL CAUSES PER MILLION LIVING AT VARIOUS AGES, 1906-10, 1911 and 1912.

Sex and Age.	1906-10.	1911.	1912.					
	England and Wales.		England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
0- ...	45,445	47,318	35,405	36,836	43,696	33,374	26,058	38,053
5- ...	3,326	3,461	3,068	3,111	3,703	3,002	2,297	3,298
10- ...	1,971	2,040	1,823	2,052	2,017	1,735	1,607	1,894
15- ...	2,975	3,036	2,816	2,730	3,124	2,844	2,443	2,938
20- ...	3,971	3,851	3,523	3,438	3,875	3,357	3,383	3,573
25- ...	5,251	4,456	4,174	4,529	4,743	3,803	3,764	4,293
30- ...	5,251	5,526	5,207	5,966	6,200	4,523	4,430	5,419
35- ...	8,615	7,112	6,957	8,511	8,271	6,200	5,384	7,385
40- ...	8,615	9,268	9,117	11,592	10,981	8,016	6,867	9,759
45- ...	15,511	12,490	12,522	16,198	15,503	11,085	8,752	13,659
50- ...	15,511	17,407	17,250	21,709	21,134	16,045	11,851	18,970
55- ...	31,218	24,563	24,784	30,385	29,569	23,591	18,151	27,020
60- ...	31,218	36,074	36,405	42,233	43,340	35,510	27,506	39,645
65- ...	64,400	52,091	51,140	58,273	60,270	51,203	40,816	55,458
70- ...	64,400	80,900	83,568	87,261	98,336	85,949	68,066	90,752
75- ...	137,722	119,645	121,487	129,342	140,117	122,055	106,975	129,551
80- ...	137,722	171,994	175,703	185,902	193,676	167,737	170,831	179,283
85 and upwards	283,035	270,692	266,022	254,351	274,241	255,725	275,050	261,335

TABLE XXXIX.—continued.

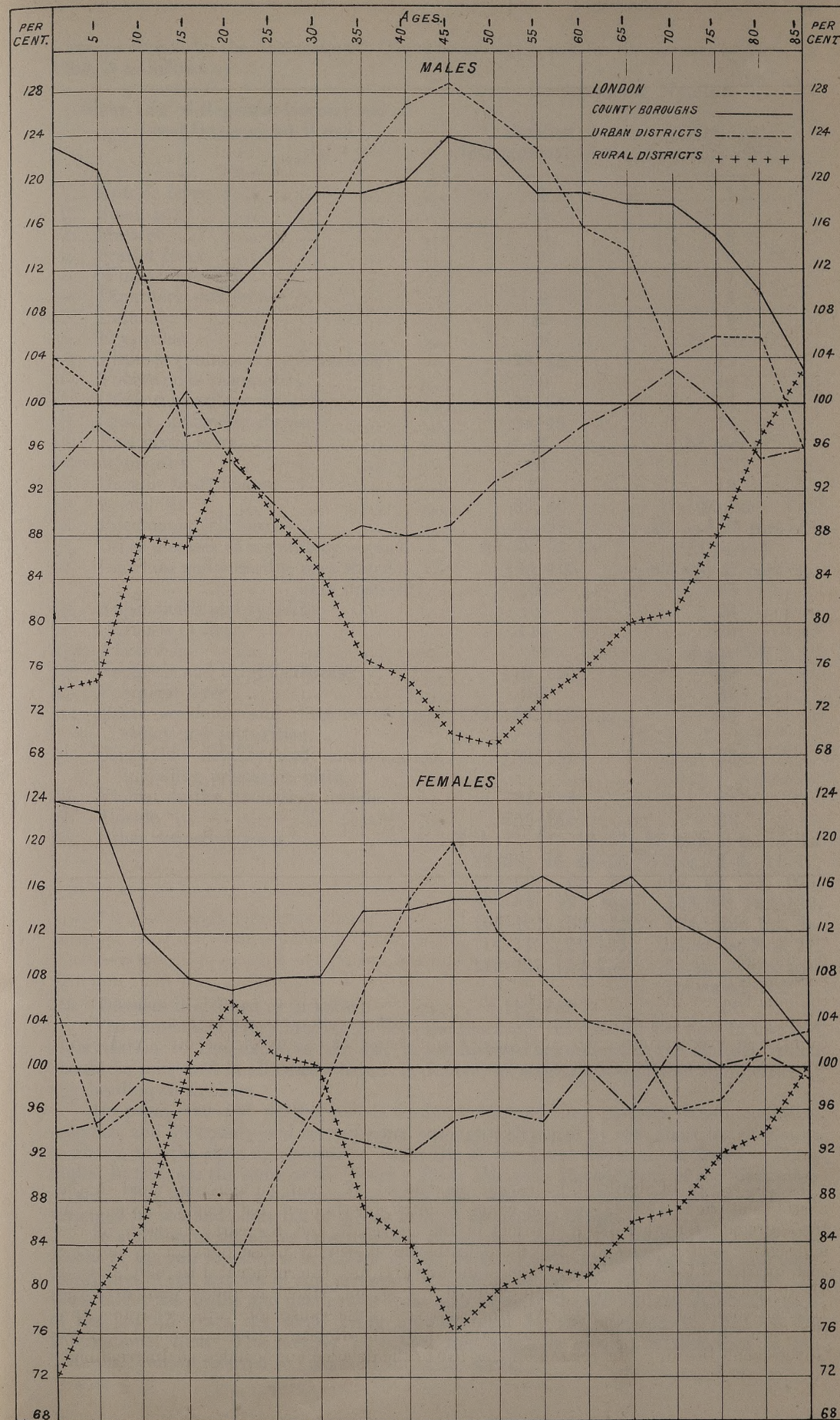
Sex and Age.	1906-10.	1911.	1912.					
	England and Wales.		England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
FEMALES.								
0— ...	37,980	40,143	29,449	30,941	36,639	27,572	21,304	31,735
5— ...	3,438	3,374	3,047	2,852	3,736	2,901	2,437	3,228
10— ...	2,092	2,070	1,968	1,907	2,209	1,958	1,697	2,051
15— ...	2,764	2,725	2,688	2,321	2,899	2,647	2,684	2,698
20— ...	3,339	3,209	3,058	2,502	3,286	2,994	3,247	3,025
25— ...	4,462	3,735	3,554	3,215	3,828	3,456	3,575	3,562
30— ...	4,462	4,563	4,356	4,232	4,707	4,106	4,376	4,366
35— ...	5,903	5,903	5,783	6,197	6,572	5,389	5,024	5,990
40— ...	7,051	7,413	7,146	8,220	8,160	6,584	5,968	7,475
45— ...	12,000	9,859	9,646	11,530	11,114	9,140	7,297	10,313
50— ...	12,000	13,236	13,064	14,692	14,989	12,527	10,416	13,853
55— ...	24,278	19,093	18,886	20,376	22,016	17,960	15,560	19,940
60— ...	24,278	27,734	27,465	28,430	31,563	27,367	22,354	29,160
65— ...	53,125	39,468	40,018	41,323	46,680	38,602	34,270	42,112
70— ...	53,125	66,717	67,846	65,335	76,536	69,194	58,738	71,323
75— ...	119,591	99,528	102,830	99,644	113,862	102,878	95,073	106,269
80— ...	119,591	151,578	152,209	154,531	163,346	152,978	142,765	156,809
85 and upwards	250,862	232,681	245,609	252,765	249,863	242,148	245,467	246,655
PERSONS.								
0— ...	41,724	43,747	32,440	33,898	40,180	30,486	23,698	34,906
5— ...	3,382	3,418	3,058	2,981	3,719	2,952	2,366	3,263
10— ...	2,032	2,055	1,896	1,979	2,114	1,847	1,651	1,973
15— ...	2,869	2,879	2,751	2,516	3,007	2,744	2,554	2,814
20— ...	3,638	3,513	3,278	2,918	3,557	3,166	3,317	3,279
25— ...	4,837	4,076	3,847	3,807	4,256	3,620	3,669	3,904
30— ...	4,837	5,023	4,763	5,036	5,419	4,306	4,402	4,867
35— ...	7,806	6,487	6,350	7,281	7,391	5,781	5,201	6,660
40— ...	7,806	8,306	8,095	9,801	9,516	7,273	6,410	8,569
45— ...	13,687	11,124	11,029	13,722	13,215	10,070	8,017	11,910
50— ...	13,687	15,235	15,070	17,995	17,905	14,199	11,129	16,280
55— ...	27,546	21,695	21,691	25,029	25,578	20,616	16,835	23,271
60— ...	27,546	31,635	31,648	34,737	37,024	31,113	24,872	33,993
65— ...	58,124	45,193	45,062	47,887	52,695	44,194	37,434	48,019
70— ...	58,124	72,786	74,574	74,143	85,463	76,211	63,097	79,339
75— ...	127,003	107,802	110,504	110,635	123,992	110,555	100,536	115,354
80— ...	127,003	159,565	161,402	165,154	174,332	158,589	155,164	165,057
85 and upwards	262,398	246,171	252,855	253,223	257,792	246,810	257,505	251,466

The remaining portions of Diagram IV. very largely speak for themselves. Town conditions evidently tell more severely on males than on females, and on infants and the middle-aged and elderly than on children and the aged. The chances of life for very old persons seem almost the same in town and country. It can be seen with what rapidity the middle-aged and elderly die off in the county boroughs, whereas in the smaller towns mortality is throughout life generally speaking rather below the average for the whole country, approximating much more closely to it than that of any of the other classes of area dealt with.

CAUSES OF DEATH.

The causes of death of males and females at 27 groups of ages are stated in the abstracts at pages 190-291 for the whole country, for London, for county boroughs in the aggregate, for other urban districts in the aggregate, and for rural districts in the aggregate; and at pages 292-309 these deaths are shown by cause but not by age for each quarter of the year. These tables include the full International List of Causes of Death with certain subdivisions introduced for reasons stated in the "Manual of the International List" (page vi). All other abstracts of the causes of death are arranged in the form of the short list of causes adopted by the Registrar-General and the Local Government Board. The relation of this list to the detailed and condensed International

DIAGRAM IV. DEATHS FROM ALL CAUSES. 1912.
Mortality at different Ages in various Classes of Area per cent. of Mortality at the same Ages in England & Wales.



Lists as revised by the International Commission which met for the purpose at Paris, in 1909, is as follows:—

Short List of Registrar-General and of Local Government Board.	Corresponding Number.	
	Detailed International List.	Abridged International List.
1. Enteric fever	1	1
2. Small-pox	5	4
3. Measles	6	5
4. Scarlet fever	7	6
5. Whooping cough	8	7
6. Diphtheria and croup	9	8
7. Influenza	10	9
8. Erysipelas	18	12 part of.
9. Phthisis (pulmonary tuberculosis) ...	28, 29	13
10. Tuberculous meningitis... ..	30	14
11. Other tuberculous diseases	31-35	15
12. Cancer, malignant disease	39-45	16
13. Rheumatic fever... ..	47	37 part of.
14. Meningitis	61	17
15. Organic heart disease	79	19
16. Bronchitis	89, 90	20, 21
17. Pneumonia (all forms)	91, 92	22, and 23 part of.
18. Other diseases of respiratory organs ...	86-88, 93-98	23 part of.
19. Diarrhoea and enteritis, ages stated ...	104, 105	25, and 37 part of.
" " ages unstated ...	104	25
20. Appendicitis and typhlitis	108	26
21. Cirrhosis of liver	113	28
21A. Alcoholism	56	37 part of.
22. Nephritis and Bright's disease	119, 120	29
23. Puerperal fever	137	31
24. Other accidents and diseases of preg- nancy and parturition.	134-136, 138-141	32
25. Congenital debility and malformation, including premature birth.	150, 151	33
26. Violent deaths, excluding suicide	164-186	35
27. Suicide	155-163	36
28. Other defined diseases	2-4, 11-17, 19-27, 37 plus detailed list 36-38, 46, 48-55, Nos. 2-4, 11-17, 57-60, 62-78, 19, 64, 65, 102, 80-85, 99-103, 103, 109, 128-132, 105-107, 109-112, 154; and less de- tailed list Nos. 47, 114-118, 121-133, 56, and, where ages 142-149, 152-154. are stated, 105.	
29. Diseases ill-defined or unknown	187-189	38

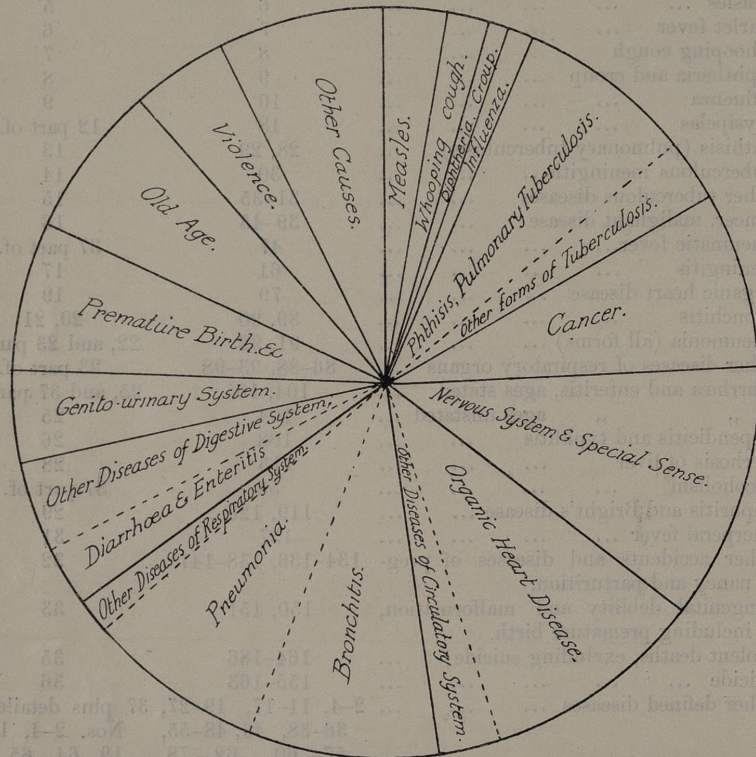
The contents of every heading in both the short and the detailed list now in use, and their relation to the items in the list in use hitherto are defined in the Manual, which should be consulted in all cases where it is desired to ascertain the precise significance of any heading in the lists.

On pages 329-453 deaths are shown for urban and rural portions of administrative counties, and for county and metropolitan boroughs, arranged by sex, short list of causes as above, and the eight age-groups of Table III. of the Local Government Board. These tables, in fact, are the same as the Board's Table III. with the addition of the distinction of sex. For all other administrative areas the deaths are shown on pages 454-552 arranged by sex and short list of causes without distinction of age.

In addition to the above presentations, all of which follow the International List, the deaths of the year are shown in Tables 19 and 20 for England and Wales only, and with distinction of sex but not of age, arranged according to the list in use up to 1910. In these tables the deaths and death-rates from each cause in the old list are shown for each of the last 15 years, the series being uninterrupted by the adoption in 1911 of the International List. The method by which this result is secured is described in the "Manual" above referred to (pages vi and xxvi-xxxi).

The proportions in which the more important diseases contribute to the death roll are shown by Diagram V., in which the whole area of the circle represents deaths from all causes, and its various segments deaths from particular causes or groups of causes. Certain differences in this diagram from its form in years previous to 1911, notably increase of the segment denoting nervous at the expense of that denoting circulatory disease, are due to the adoption of the International List.

DIAGRAM V.—ENGLAND AND WALES.—PROPORTIONS OF DEATHS FROM THE PRINCIPAL CAUSES TO TOTAL DEATHS, 1912.



International List Nos.	Disease.	Proportion per 1000 Deaths from All Causes.	Rate per 1000 living.
6	Measles	26.4	0.35
8	Whooping cough	17.3	0.23
9	Diphtheria, croup	8.9	0.12
10	Influenza	11.0	0.15
28, 29	Phthisis, pulmonary tuberculosis	78.2	1.04
30-35	Other forms of tuberculosis	24.6	0.33
39-45	Cancer	76.6	1.02
60-76	Diseases of nervous system and special sense	110.7	1.47
79	Organic heart disease	98.1	1.30
77, 78 and 80-85	Other diseases of circulatory system	27.5	0.36
89, 90	Bronchitis	81.6	1.08
91, 92	Pneumonia	76.7	1.02
86-88 and 93-98	Other diseases of respiratory system	15.2	0.20
104, 105	Diarrhoea and enteritis	23.7	0.32
99-103 and 106-118	Other diseases of digestive system	39.8	0.53
119-133	Diseases of genito-urinary system	39.8	0.53
151-153	Premature birth and diseases of early infancy	64.5	0.86
154	Old age	66.6	0.88
155-186	Violence	40.6	0.54
	Other causes	72.2	0.96
	All causes	1000.0	13.29

It has already been mentioned that the death-rate from all causes was lower in 1912 than in any previous year on record. The same remark holds good of the death-rates from tuberculosis as a whole, enteric fever, diphtheria and croup conjointly, and diarrhoeal diseases. The mortality from measles was above the average of the preceding 10 years, but the experience of the year in regard to other epidemic diseases was favourable. Thus the death-rate from scarlet fever was the lowest yet recorded, 1911 excepted; while lower rates have been attained only twice in the case of whooping cough (in 1909 and 1911). The records of mortality from these diseases are represented in Table 22. The table shows that the above statements hold good of scarlet fever, whooping cough, and diphtheria and croup, whether their mortalities be reckoned per million at all ages or at ages under 15 years only. The death-rate from cancer shows, as usual, an increase over that of any previous year, but those from diseases affecting the lungs were very low. Lower mortality from phthisis has been experienced in 1910 only (when the rate was only 2 per million lower), and from bronchitis and pneumonia jointly in 1910 and 1911 only.

GENERAL DISEASES.

1. Enteric Fever.—The deaths of 1,600 persons of all ages and of both sexes were classified to enteric fever during 1912.

These deaths correspond to a rate of 44 per million persons living as compared with 67 in 1911. This is the lowest mortality as yet recorded for England and Wales, the only previous year with a rate of less than 60 having been 1910, when the mortality from this cause stood at 53 per million (Table 22). When it is added that up to 1904 the rate had never fallen below 100 per million living it will be seen how rapid has been the progress made during the last few years towards extinction of this disease. The surmise hazarded in last year's Report, that the arrest in decline then reported was dependent upon the very hot summer of that year and therefore of a temporary nature only, appears to have been justified by the course of events in 1912.

The effect of standardization of the enteric fever death-rate (by the direct method) in accordance with the sex and age distribution of the populations compared is shown in Table XL. It will be seen that mortality from this disease is but slightly modified by this correction.

TABLE XL.—ENTERIC FEVER.—DEATH-RATES per MILLION POPULATION, 1906-10, 1911, and 1912.

		1906-10.	1911.	1912.					
		England and Wales.	England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.	
Males	Crude rates ...	84	81	52	33	68	58	32	58
	Standardized rates	84	80	52	33	66	58	32	57
Females	Crude rates ...	56	53	36	22	45	38	26	38
	Standardized rates	56	54	35	21	45	38	27	38
Persons	Crude rates ...	70	67	44	27	56	48	29	48
	Standardized rates	70	67	43	27	55	47	30	47

Table XLI. shows that, as in 1911, the mortality of London was very low, and that of the North of England much higher than elsewhere. Although the table shows that enteric fever is largely dependent upon urban conditions of life, it is remarkable that the mortality of the smaller towns is higher than that of the county boroughs in the North and in Wales, and in the South is higher than that of London. This was the case also in 1911, the highest mortality in the Midlands and South on the other hand in both years being that of their county boroughs. Possibly the explanation may lie in greater relative sanitary progress in the large towns, and if so the ultimate outlook becomes the more hopeful. The position occupied by London especially shows to what an extent the influence of density of population can be counteracted by careful administration, for it will be seen from Table XLII. that the prevalence of the disease was less in London than in the rural districts as a whole. This was the case also in 1911, and is the main cause of the low mortality in London, though the fact that the fatality of

London cases is somewhat below the average contributes to the same result. The large proportion of cases treated in institutions in London—73 per cent. of all London deaths being returned from institutions as against 65 per cent. in the county boroughs, 46 in the smaller towns and 44 in the rural districts (*see* p. 310)—no doubt contributes to this result by limiting the possible channels of infection.

TABLE XLII.—ENTERIC FEVER, 1912.—PREVALENCE and FATALITY.

Class of Area.	Cases per 100,000 Population.					Deaths per 1,000 Cases.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	16	—	16	—	—	175	—	175
County Boroughs	30	23	27	24	27	214	171	227	219	204
Other Urban Districts	34	15	21	24	24	213	197	149	228	200
Rural Districts	26	15	16	14	18	175	147	167	217	166
All areas	31	18	19	21	23	209	174	176	224	194

5. **Small-pox.**—The number of deaths, nine, attributed to this disease in 1912 is lower than that recorded for any previous year.

A detailed return of the vaccinal condition of each of the nine fatal cases of small-pox has been prepared from the case records by the Local Government Board. This renders it possible to classify the deaths with much more precision in regard to vaccination than in former years, when the only information available was that recorded on the death certificates, which frequently do not refer to the subject. Of the nine persons dying during the year five, two young children and three adults, had not been vaccinated, and four, all adults aged from 30 years upwards, had been, or were stated to have been, vaccinated in infancy only. None appear to have been re-vaccinated.

6. **Measles.**—As in 1911 the mortality from measles, 351 per million living at all ages, was above the average for the present century, but Table 22 shows that at any earlier date this would have counted as a low rate. Table XLIII. shows that the brunt of this

mortality fell on the North of England and on Wales, the large towns of Wales recording a particularly high rate. The South of England escaped very lightly except for London, which had been especially affected in 1911. The mortality of the large towns was four times that of the rural districts, the smaller towns occupying an intermediate position.

TABLE XLIII.—MEASLES, 1912.—MORTALITY per 100,000 LIVING at AGES 0-15.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	152	—	152
	Females	—	—	129	—	129
	Persons	—	—	140	—	140
County Boroughs	Males	208	154	69	298	181
	Females	192	142	62	284	167
	Persons	200	148	66	291	174
Other Urban Districts	Males	134	67	32	203	98
	Females	129	63	30	188	93
	Persons	132	65	31	195	96
Rural Districts	Males	83	34	16	57	43
	Females	81	37	14	81	46
	Persons	82	35	15	69	44
All areas	Males	164	85	85	174	118
	Females	153	80	74	171	110
	Persons	158	82	80	173	114

Table XLIV. confirms the corresponding table in the Report for 1911 in showing that notwithstanding the more frequent exposure to infection in towns the proportionate number of deaths of very young children is not much higher there than in the rural districts.

TABLE XLIV.—MEASLES, 1912.—DEATHS under TWO YEARS of AGE per THOUSAND at ALL AGES.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	641	—	641
	Females	—	—	594	—	594
	Persons	—	—	619	—	619
County Boroughs	Males	599	547	545	561	580
	Females	565	527	445	562	550
	Persons	582	538	498	562	566
Other Urban Districts	Males	639	596	539	615	617
	Females	580	562	574	549	569
	Persons	610	579	556	583	594
Rural Districts	Males	630	533	481	544	571
	Females	580	500	578	527	543
	Persons	606	516	526	534	557
All areas	Males	613	561	616	590	599
	Females	570	535	576	550	561
	Persons	592	548	598	570	581

Only ten per cent. of the total deaths recorded occurred in institutions (p. 310).

7. **Scarlet Fever.**—The deaths allocated to this disease during 1912 number 1,995 in all, corresponding to a rate of 54 per million population at all ages, and of 166 per million at ages under 15 years. These are the lowest death-rates from scarlet fever recorded except those of 1911, which were 52 and 159 respectively. Table 22 shows to what a remarkable extent mortality from this disease has declined during

the last 50 years, and how rapidly the process is still going on. Until 1906 no year experienced a mortality at all ages less than double that of 1911. If deaths alone were considered indeed it might be thought that the disease was tending to disappearance, but the notification returns prove that it is still widely prevalent, the diminished mortality corresponding with extreme mildness of type, which contrasts sharply with that of a generation or two ago.

TABLE XLV.—SCARLET FEVER, 1912.—MORTALITY per 100,000 LIVING at AGES 0-15.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	12	—	12
	Females	—	—	12	—	12
	Persons	—	—	12	—	12
County Boroughs	Males	24	22	17	16	23
	Females	24	31	17	20	25
	Persons	24	27	17	18	24
Other Urban Districts	Males	24	11	7	19	16
	Females	25	11	8	20	16
	Persons	24	11	7	19	16
Rural Districts	Males	20	10	5	11	11
	Females	14	11	4	9	10
	Persons	17	11	4	10	10
All areas	Males	24	14	10	16	16
	Females	23	17	10	16	17
	Persons	23	16	10	16	17

The fatality from the disease during 1912 is seen from Table XLVI. to have amounted to 19 deaths per 1,000 cases notified as against 18 in 1911. Corresponding rates cannot be stated for previous years, notifications not having been tabulated; but the fatality in London, where 94 per cent. of all the deaths occurred in hospitals and nursing homes, may be compared with the experience in the past of the Metropolitan Asylums Board, which controls the fever hospitals. The fatality during 1912 in the Board's hospitals was 1.6 per cent. of cases treated, as against 1.5 deaths per cent. of notifications shown in Table XLVI. for London cases as a whole, the difference no doubt being largely due to mistaken notifications. Comparing this rate of 1.6 with the Board's past experience we find that the ratio of deaths per cent. of admissions has gradually fallen from 13.1 in 1876-1880 (when, however, there was some selection of severe cases for admission) to 2.7 in 1906-10, so the type of disease prevailing in London in 1912 was mild even beyond the average of recent years. During 1912 the fatality amongst the Board's male cases was 1.6 as against 1.5 for females. Corresponding figures cannot be given for the country at large as the returns of notified cases do not distinguish sex. Table XLVI. shows that the fatality of scarlet fever during 1912 varied considerably in different parts of the country, and that it was highest in the large towns and, except in the Midlands, lowest in the rural districts in all parts of the country. It was also considerably higher in the North of England than in the South, for each class of area compared. Thus, the extremes were a rate of 26 per 1,000 in the county boroughs of the North and one of only 9 per 1,000 in the rural districts of the

TABLE XLVI.—SCARLET FEVER, 1912.—PREVALENCE and FATALITY.

Class of Area.	Cases per 10,000 Population aged 0-15 years.					Deaths per 1,000 Cases.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	87	—	87	—	—	15	—	15
County Boroughs	98	126	128	105	110	26	23	14	19	23
Other Urban Districts	116	85	75	112	97	23	13	11	18	17
Rural Districts	107	79	54	78	79	17	15	9	14	14
All areas	106	96	82	99	96	23	17	13	17	19

South. This experience is in close agreement with that recorded for 1911. The general rule of comparatively high fatality in the large towns and in the northern counties applies also in the cases of enteric fever and diphtheria, though not to such an extent as in that of scarlet fever. The experience of future years will probably show whether this greater fatality is due to greater severity of the prevalent type of disease or to some other factor, such as inferior conditions of treatment or of health before attack. In the former case the area of greatest fatality would presumably vary from time to time, but in the latter it might not. There has been remarkably little variation in 1912 as compared with 1911.

TABLE XLVII.—SCARLET FEVER, 1912.—RATIO of DEATHS under FIVE YEARS and over FIVE YEARS per 1,000 of those at ALL AGES.

Class of Area.	Aged 0-5.					Aged 5 and upwards.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
London	—	—	590	—	590	—	—	410	—	410
County Boroughs	570	606	462	467	571	430	394	538	533	429
Other Urban Districts	525	570	414	675	544	475	430	586	325	456
Rural Districts	576	487	310	643	516	424	513	690	357	484
All areas	553	573	506	623	556	447	427	494	377	444

Table XLVII., when compared with the similar table for 1911, shows that the age distribution of deaths in the various areas compared is subject to great variation from year to year, and that without obvious relation to change in the extent of prevalence of the disease. Epidemic prevalence would furnish a ready explanation for such changes of age distribution, but when, as in the case of the rural districts of Wales, the proportion of deaths under five years of age rises from 419 per thousand in 1911 to 643 in 1912, the prevalence remaining constant at 78 cases per 10,000 of child population in both years, the cause of the alteration in age at death must apparently be sought elsewhere. Another very similar instance is furnished by the rural districts of the South, while on the other hand a large increase of prevalence in the county boroughs of the South was accompanied by little change in the proportion of deaths at the earlier ages. It may be that analysis of the figures by smaller areas would throw more light on the subject. The rule holds good for England and Wales in 1912 as in 1911 that the proportion of deaths over five years diminishes as urbanization increases.

The extent to which cases of this disease receive hospital isolation at the present day may be inferred from the facts recorded on page 310, where it may be seen that in 1912 as in 1911 no less than 65 per cent. of the deaths from scarlet fever occurred in hospitals or nursing homes. In London the proportion was as high as 94 per cent., falling in the county boroughs to 78, in the urban districts to 51, and in the rural districts to 40 per cent.

8. Whooping Cough.—The deaths allocated to this heading numbered 8,407—3,729 of males and 4,678 of females. Though rather more numerous than those of 1911, these deaths represent a mortality below that of any previous year recorded in Table 22, except 1909 and 1911. This table shows how great has been the fall in mortality from this cause during the past twenty years.

Table XLVIII. shows that, in 1912 as in 1911, mortality from whooping cough was higher in the North than in other parts of England, but that much the highest mortality of all was that of Wales, which was not in excess in the previous year. Diminution of mortality with diminishing aggregation of population is more marked than in 1911, the increase in the year's mortality being wholly accounted for by increased number of deaths in the county boroughs.

It will be seen from Table XLIX. that, as in 1911, the proportion of infantile to total deaths was larger in all parts of the country in the rural districts than in the small towns, and larger in these than in the county boroughs. There is reason to believe that this distribution of mortality, just the opposite to that noted in the case of scarlet fever, is characteristic of whooping cough, and it would be of interest to know its cause. It might have been expected that in towns, where the opportunity of infection is greatest, the proportion of infantile deaths would also have been at its maximum, there being less chance of survival beyond the first year of life without exposure to infection.

TABLE XLVIII.—WHOOPING COUGH, 1912.—MORTALITY per 100,000 LIVING AT AGES 0-15.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	66	—	66
	Females	—	—	85	—	85
	Persons	—	—	76	—	76
County Boroughs	Males	83	90	53	108	83
	Females	101	108	58	133	101
	Persons	92	99	56	120	92
Other Urban Districts	Males	66	62	47	98	64
	Females	87	73	54	125	80
	Persons	76	68	50	111	72
Rural Districts	Males	42	47	39	64	46
	Females	69	64	55	76	64
	Persons	56	56	47	70	55
All areas	Males	71	66	54	89	66
	Females	91	82	68	111	83
	Persons	81	74	61	100	75

The tendency to especially heavy incidence of mortality from whooping cough upon the earlier ages in the Rural Districts is also displayed in the distribution of the mortality of infants within the first year of life, as shown in Table 30. The section of this table relating to all infants shows that in the rural districts mortality is higher than in any other class of area under three months of age, and lower than in any other class of area at ages 6-12 months. If the first and the second six months of life are compared it may be seen from this table that the proportions of total infant mortality occurring during the first six months are as follows:—London 41 per cent., county boroughs 45, other urban districts 46, and rural districts 52 per cent.

TABLE XLIX.—WHOOPING COUGH, 1912.—DEATHS under ONE YEAR of AGE per 1,000 at ALL AGES.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	490	—	490
	Females	—	—	413	—	413
	Persons	—	—	447	—	447
County Boroughs	Males	435	455	489	476	448
	Females	412	431	371	461	419
	Persons	422	442	427	467	432
Other Urban Districts	Males	490	541	571	561	530
	Females	473	465	532	460	475
	Persons	481	499	550	504	499
Rural Districts	Males	530	561	621	624	577
	Females	545	479	554	556	521
	Persons	539	514	582	587	544
All areas	Males	462	509	526	556	500
	Females	447	454	454	481	454
	Persons	453	479	486	515	474

9. Diphtheria and Croup.—The 4,338 deaths from diphtheria and croup in 1912, of which all but 49 were allocated to diphtheria, correspond to a death-rate of 118 per million living at all ages, or 372 per million living at ages under 15 years, the standard preferably adopted in the case of a disease of which the mortality is almost confined to children. Table 22 shows that these mortalities are the lowest recorded from this cause since 1855, when it was first distinguished from scarlet fever in the tables.

Table L. shows the effect upon the death-rate at all ages from diphtheria and croup of standardization by the "direct method" referred to on page xxxvi. All the crude rates require increase to make them fairly comparable with those of 1901, the standard year, on account of the diminished proportion of children in our population at the present time. The difference in the case of England and Wales, which amounts to seven per million living, or 6 per cent. of the crude rate, gives an example of the extent to which comparisons of crude mortality at all ages may be misleading, even in the case of a single very large community and at such a short interval as eleven years.

TABLE L.—DIPHTHERIA and CROUP.—DEATH-RATES per MILLION POPULATION, 1906-10, 1911, and 1912.

		1906-10.	1911.	1912.					
		England and Wales.		England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
Males	Crude rates	163	142	120	106	149	123	84	131
	Standardized rates	169	150	127	114	154	129	91	137
Females	Crude rates	161	134	117	99	139	114	102	121
	Standardized rates	168	143	124	112	146	120	104	130
Persons	Crude rates	162	138	118	102	144	118	93	126
	Standardized rates	169	146	125	113	150	124	98	133

The distribution of this mortality in different parts of the country and different classes of area is shown in Table LI., from which it appears that, as in 1911, it was lowest in the Midlands and highest in the North, but did not vary greatly throughout the country. In all parts of the country it was higher in the county boroughs than elsewhere, and, except in Wales, higher in the smaller towns than in the rural areas. In all these respects the distribution of mortality resembled that of the preceding year, except that in 1911 the rate was somewhat higher in the rural districts than in the smaller towns of the North.

TABLE LI.—DIPHTHERIA and CROUP, 1912.—MORTALITY per 100,000 LIVING at AGES 0-15.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	34	—	34
	Females	—	—	34	—	34
	Persons	—	—	34	—	34
County Boroughs	Males	43	40	66	53	45
	Females	45	40	62	59	45
	Persons	44	40	64	56	45
Other Urban Districts	Males	41	30	50	30	37
	Females	41	30	43	35	37
	Persons	41	30	46	32	37
Rural Districts	Males	30	22	24	32	26
	Females	38	30	28	33	31
	Persons	34	26	26	33	28
All areas	Males	41	31	39	35	37
	Females	42	33	38	39	38
	Persons	41	32	39	37	37

Table LII. shows, that although mortality from diphtheria was greatest in the North, its prevalence as indicated by notifications was practically at its lowest in that part of the country. In comparison with the South of England the lower apparent prevalence in the North was more than counterbalanced by higher fatality, which caused the higher mortality shown in Table LI. In all these respects the experience of 1912-

TABLE LII.—DIPHTHERIA, 1912.—PREVALENCE and FATALITY.

	Cases per 10,000 population, aged 0-15 years.					Deaths per 1,000 cases.				
	North.	Mid-lands.	South.	Wales.	England and Wales.	North.	Mid-lands.	South.	Wales.	England and Wales.
London	—	—	55	—	55	—	—	65	—	65
County Boroughs	36	42	78	56	43	127	98	85	103	109
Other Urban Districts	33	35	54	33	37	129	89	89	103	103
Rural Districts	35	29	35	35	32	105	94	77	99	93
All areas	35	35	53	38	40	125	94	76	102	97

repeats that of 1911. This difference is susceptible of various explanations. It may be that infection was of severer type or children less resistant or worse cared for in the North; but on the other hand a difference of practice in regard to notification might explain at once the lower prevalence and higher fatality in the North. Diphtheria is a disease found to a considerable extent in the degree in which it is looked for, that is to say that the diphtheric nature of many mild cases of sore throat and of nasal discharge and similar conditions readily escapes recognition unless they are submitted to specific tests. The facilities for making such tests have increased greatly of late years, and the increasing practice of doing so has no doubt raised the number of notifications above what it would otherwise have been. If this change has progressed further in the South than in the North, the larger proportion of cases and the lower fatality in the South are accounted for without postulating any difference in type of disease, patient, or treatment. It may be pointed out, however, that treatment is most likely to be effective where diagnosis is promptest and most complete. The differences in recorded fatality between the various classes of area (apart from London) are small, much smaller than those between the different parts of the country. Dealing with the country at large the range of fatality is from 93 per 1,000 cases in the rural districts to 109 in the county boroughs, whereas it ranges from 76 in the South to 125 in the North. These rates are generally speaking below those of the preceding year and are all very low compared with those prevalent before the introduction, about 1894, of antitoxic serum treatment for diphtheria. During the four years 1890-1893 the hospitals of the Metropolitan Asylums Board experienced a fatality of 304 deaths per thousand admissions, as against 68 only in 1912.

TABLE LIII.—DIPHTHERIA and CROUP, 1912.—DEATHS under FIVE YEARS OF AGE per THOUSAND at ALL AGES.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	668	—	668
	Females	—	—	593	—	593
	Persons	—	—	630	—	630
County Boroughs	Males	646	556	529	581	600
	Females	557	515	383	400	512
	Persons	601	535	457	489	556
Other Urban Districts	Males	565	471	500	726	535
	Females	533	472	441	583	501
	Persons	549	471	473	649	518
Rural Districts	Males	545	504	397	489	488
	Females	477	308	375	304	369
	Persons	508	394	386	396	423
All Areas	Males	606	511	556	613	567
	Females	538	446	481	454	491
	Persons	571	478	518	530	528

The fatality of diphtheria, like that of most other infectious diseases of children, decreases rapidly with increase of age. In the experience during 1912 of the Metropolitan Asylums Board it decreased with age from 404 per thousand admissions under one year of age to 41 per thousand at ages 10-15. The ages at which cases occur therefore have considerable influence on the mortality. Table LIII. throws light on this matter in so far as age distribution of deaths can be regarded as indicative of age distribution of cases. It shows London's low fatality (Table LII.) in a yet more favourable light owing to the fact that the proportion of deaths under five years of age is almost the highest recorded in the table. The proportion of deaths under five years in the rural districts is uniformly lower than that in either class of urban areas. This is not surprising, but the contrast with Table XLIX. (whooping cough) will be noted. As in other similar tables the proportion of early deaths is higher in the male sex.

Of the 4,338 deaths from diphtheria and croup 2,176, or almost exactly one-half, occurred in institutions for the sick or infirm (page 310). In London the proportion was as high as 88 per cent.; in the county boroughs it was 59 per cent.; in the smaller urban districts 41 per cent.; and in the rural districts 27 per cent. only. In each case the number of deaths in institutions other than hospitals was inconsiderable. Only two of the nine deaths from membranous laryngitis, and none of the 40 deaths from croup, were returned from institutions—proportions which illustrate the obsolescence of these forms of return.

10. Influenza.—The deaths allocated to this disease during the year numbered 5,354, the corresponding mortality being 146 per million living. Since 1890, when influenza reappeared, after a long period of quiescence, as a serious factor in our mortality, only two years, 1896 and 1911, have yielded a lower death-rate from this cause.

Table LIV shows that, as in 1911, the mortality was highest in Wales and lowest in the North of England. It was also decidedly higher in the rural districts than elsewhere. This rural excess was also noted in 1911, and has been commented upon in several previous reports.

TABLE LIV.—INFLUENZA, 1912.—MORTALITY per MILLION POPULATION.

Class of Area.	Sex.	North.	Midlands.	South.	Wales.	England and Wales.
London	Males	—	—	121	—	121
	Females	—	—	122	—	122
	Persons	—	—	122	—	122
County Boroughs	Males	127	128	184	114	133
	Females	111	102	168	103	115
	Persons	119	114	176	108	123
Other Urban Districts	Males	134	147	151	165	145
	Females	141	129	176	128	143
	Persons	138	138	164	147	144
Rural Districts	Males	195	207	215	190	205
	Females	153	198	197	242	192
	Persons	174	203	206	216	199
All areas	Males	139	159	155	163	151
	Females	128	140	156	161	141
	Persons	133	149	155	162	146

Comparatively few deaths from influenza occur in institutions for the sick (page 310). It is recorded much more frequently in certificates received from poor law institutions and asylums than in those from hospitals, which returned this as the cause of death in 55 only out of 38,734 certifications during the year, or 1.4 per 1,000 from all causes as against about 11.8 per 1,000 for deaths occurring elsewhere. Much the same ratio was noted in 1911 between the frequency of hospital and other deaths from this cause, although the frequencies compared were somewhat lower in each case. There can be no doubt that in private practice, in which 13.1 influenza deaths per 1,000 from all causes were recorded, the term is often very loosely used.

18. **Erysipelas.**—This disease is returned as having caused the death of 900 persons, of whom 489 were males and 411 females. The distribution of this mortality, by age as well as by sex, was very similar to that of mortality in general, there being considerable incidence in infancy. Table 20 shows the decline in mortality from this cause which has occurred of late years, the rate for each of the years 1908 and 1912, 24 per million, being the lowest recorded except in 1910, when it stood at 23. In 12 of the 15 years 1870-1884 the deaths exceeded 2,000, and in both 1874 and 1875 there were over 3,000 deaths.

TABLE LV.—ERYSIPELAS, 1912.—MORTALITY per MILLION POPULATION.

Class of Area.	Sex.	Mortality per Million Population					England and Wales
		North.	Midlands.	South.	Wales.		
London	Males	—	—	37	—	37	
	Females	—	—	32	—	32	
	Persons	—	—	34	—	34	
County Boroughs	Males	30	35	32	25	31	
	Females	23	22	29	17	23	
	Persons	26	28	30	21	27	
Other Urban Districts	Males	25	26	27	16	25	
	Females	21	22	17	21	20	
	Persons	23	24	22	19	22	
Rural Districts	Males	20	24	21	19	22	
	Females	9	18	17	15	16	
	Persons	15	21	19	17	19	
All areas	Males	27	28	31	19	28	
	Females	21	21	25	18	22	
	Persons	24	24	28	19	25	

Table LV. shows that, unlike many other diseases, erysipelas caused a higher mortality in the South of England than elsewhere. This was the case also in 1911, and in both years the high mortality recorded in London was largely responsible for the fact. In all parts of the country the death-rates recorded show a steady fall with decreasing aggregation of population.

TABLE LVI.—ERYSIPELAS, 1912.—PREVALENCE and FATALITY.

Class of Area.	Cases per 100,000 Population.					Deaths per 1,000 Cases.				
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.
County Boroughs	71	82	61	53	73	37	34	50	40	37
Other Urban Districts	61	58	40	50	55	38	40	54	38	41
Rural Districts	53	45	37	35	44	28	48	51	49	43
All areas	65	62	65	45	62	36	39	43	41	39

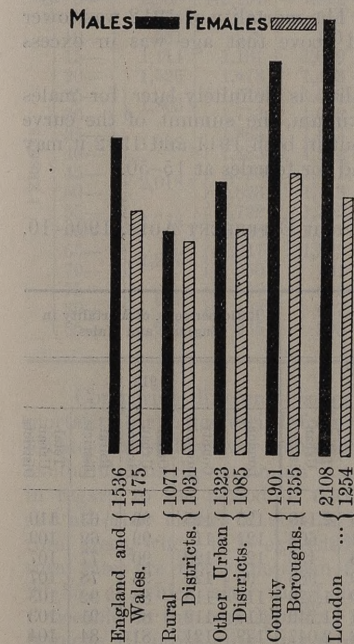
Table LVI. shows that the comparatively high mortality of London is apparently due entirely to greater prevalence, the proportion of deaths to cases notified there being below average. Prevalence showed even greater increase with urbanization than mortality, the rate in the rural districts being less than half that in London. Reference to page 310 shows that the excess of mortality in London occurred exclusively in the poor law institutions, deaths in which amounted to 53 per cent. of the total, as against 21 per cent. in the county boroughs, and 15 per cent. in the rural districts.

20c. **Vaccinia.**—Four deaths have been assigned to this cause, two less than in 1911. Until 1911 it was the practice to class to this heading not only deaths returned as due to it, but all in the case of which vaccination appeared from the certificates to have been in any way connected with the cause of death. In 1911 and 1912, however, the general rule with regard to erysipelas, blood poisoning, &c., following slight injury (Manual, page xxxiii, 4 (e)), has been followed in the case of vaccination, with the result that in 1912

six deaths, which in former years would have been assigned to effects of vaccination, appear under other headings. The causes to which they have been assigned are as follows:—Measles (1 death), pyæmia (2 deaths), and septicæmia (3 deaths). These were all deaths of infants except one of the septicæmia cases, a male of 18 years.

28-35. **Tuberculosis.**—The deaths assigned to tuberculous affections in the aggregate numbered 50,051, a decrease of 3,069 upon the deaths so returned in 1911, and of 5,982 upon the average number in the previous five years, corrected for estimated increase of population. During the first twelve years of the present century the number of deaths returned has fallen from 58,930 in 1901 to 50,051 in 1912, notwithstanding increase of population, and a change in its age constitution favouring tubercle mortality, as shown in Table LVII. by the reduction of the crude rate for persons required in standardization to compensate for it. This rate amounted to 1,366 per million living, which is less than that of any previous year, and forms 10.3 per cent. of the mortality from all causes. Compared with the average rate for the five years 1906-10 a reduction of 13 per cent. is shown in Table LVII. whether the crude or the standardized rate is considered, while the reduction as compared with 1911 amounts to 7 per cent. There is no indication in these figures of any slackening in the very satisfactory rate of decrease in tuberculosis mortality which has been maintained now for over a generation. (See Diagram VII., p. lxx).

The fall shown in Table LVII. has been shared in almost equal proportions by both sexes, but the mortality of males was 33 per cent. in excess of that of females. The extent of this excess differed greatly in the various classes of area represented in the table. It was at its maximum in London, where it amounted to no less than 73 per cent., as against 43 per cent. in the county boroughs, 24 per cent. in the smaller towns, and only 6 per cent. in the rural districts. For the population at large and for the male sex, mortality from tubercle varied in the same way with urbanization, from a maximum in London to a minimum in the rural districts. Urban conditions of life, therefore, in proportion to their accentuation, appear to increase the liability to death from tubercle, but to a much greater extent for males than for females. The excess of standardized mortality in London over that in the rural districts was no less than 97 per cent. for males, but for females it was only 22 per cent. The extent to which urban conditions differentiate against the male sex in their effect upon mortality from tuberculosis is shown graphically in Diagram VI., which compares the standardized death-rates of the two sexes given in Table LVII. for the four classes of areas. The regularity with which the excess of male over female mortality increases with urbanization will be observed. Comparison with the similar diagram relating to phthisis in last year's Report shows that mortality in town and country varies similarly according to sex whether phthisis alone or tuberculosis in general is considered. In fact the two diagrams are almost indistinguishable to the eye apart from the greater height of the columns in that relating to tuberculosis. The fact that the rate recorded for females was higher in the county boroughs than in London is probably due to a factitious lowering



of the mortality recorded for young women in London due to deaths in their country homes of workers enumerated, and infected with tubercle, in London (see Annual Report for 1911, page lii.). In all these respects Tables LVII. and LXIII. are very much alike, as is only natural in view of the fact that 76 per cent. of all the tuberculosis deaths in 1912 were due to pulmonary or laryngeal disease.

The distribution by age and sex of tuberculosis mortality in 1912 is shown in detail for the country at large and for the great groups of administrative areas in Table LVIII. Amongst other points the fact may be noted that for females the first quinquennium is

TABLE LVII.—TUBERCULOSIS (ALL FORMS).—MORTALITY per MILLION POPULATION, 1906-10, 1911 and 1912.

		1906-10.	1911.	1912.					
		England and Wales.		London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.	
Males	Crude rates ...	1,798	1,670	1,569	2,209	1,951	1,345	1,067	1,719
	Standardized rates	1,774	1,641	1,536	2,108	1,901	1,323	1,071	1,676
Females	Crude rates ...	1,350	1,279	1,175	1,274	1,363	1,084	1,004	1,225
	Standardized rates	1,352	1,282	1,175	1,254	1,355	1,085	1,031	1,220
Persons	Crude rates ...	1,566	1,468	1,366	1,713	1,645	1,210	1,036	1,462
	Standardized rates	1,556	1,456	1,350	1,667	1,619	1,200	1,051	1,440

still the most fatal, though the excess is much less than it was only a very few years ago. In 1906-1910 the mortality at 0-5 was the highest recorded for males also, though for this sex the rates from 30 to 65 years of age are now continuously higher. This remarkable change is mainly due to the enormous reduction which is occurring in the returns of deaths from tubercle in early childhood, and to which reference has already been made on pages xlii and xliii. Comparing 1912 with 1906-10 the decrease for children under five years of age amounts to as much as 30 per cent., as compared with the fall at all ages, already noted, of 13 per cent. This decline is unapproached at any other period of life, and forms an important element in the decline at all ages. At other ages the decline, though smaller in amount, is very general. The mortality of 1912 was lower than that of 1911 for each sex at all ages below 45, and above that age was in excess during three quinquennia only in each sex.

Childhood excluded, the period of greatest mortality is definitely later for males than for females. It shows no strongly marked maximum, the summit of the curve representing mortality at different ages being rounded, but in both 1911 and 1912 it may be said that for males mortality was highest at 30-65 and for females at 15-50.

TABLE LVIII.—TUBERCULOSIS, ALL FORMS.—MORTALITY at DIFFERENT AGES, 1906-10, 1911 and 1912.

MALES.	Age-groups	Mortality at Age-groups per Million Living.							Ratio per cent. of Mortality in England and Wales.				
		1906-10.	1911.	1912.				1912.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	Total Urban Districts.
				England and Wales.	London.	County Boroughs.	Other Urban Districts.						
0-5	2,832	2,475	1,947	2,432	2,426	1,803	1,225	2,149	125	125	93	63	110
5-10	611	607	557	672	646	553	384	608	121	116	99	69	109
10-15	460	445	425	533	512	381	328	456	125	120	90	77	107
15-20	980	1,007	920	829	1,188	856	719	983	90	129	93	78	107
20-25	1,665	1,580	1,486	1,703	1,709	1,302	1,360	1,526	115	115	88	92	103
25-30	2,041	1,747	1,703	1,990	1,913	1,515	1,544	1,749	117	112	89	91	103
30-35	2,441	2,017	1,960	2,520	2,373	1,587	1,638	2,047	129	121	81	84	104
35-40	2,441	2,199	2,160	3,017	2,683	1,783	1,514	2,333	140	124	83	70	108
40-45	2,728	2,366	2,312	3,459	2,949	1,884	1,441	2,556	150	128	81	62	111
45-50	2,496	2,374	2,481	3,994	3,337	1,976	1,272	2,840	161	135	80	51	114
50-55	2,496	2,562	2,391	3,850	3,184	1,963	1,247	2,751	161	133	82	52	115
55-60	1,683	2,389	2,430	4,180	3,053	2,078	1,329	2,796	172	126	86	55	115
60-65	695	2,261	2,267	4,305	2,829	1,915	1,176	2,656	190	125	84	52	117
65-70	695	1,799	1,659	3,413	2,117	1,280	975	1,939	206	128	77	59	117
70-75	327	1,263	1,131	2,078	1,475	866	803	1,281	184	130	77	71	113
75-80		688	680	1,514	971	503	408	825	223	143	74	60	121
80-85		583	507	1,598	412	436	334	609	315	81	86	66	120
85+		307	304	446	456	—	440	216	147	150	—	145	71

TABLE LVIII.—continued.

PERSONS.	Age-groups	Mortality at Age-groups per Million Living.							Ratio per cent. of Mortality in England and Wales.				
		1906-10.	1911.	1912.				1912.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	Total Urban Districts.
				England and Wales.	London.	County Boroughs.	Other Urban Districts.						
0-5	2,379	2,117	1,696	2,113	2,132	1,624	946	1,903	125	126	96	56	112
5-10	697	668	544	643	676	528	333	604	118	124	97	61	111
10-15	702	713	657	547	779	633	587	679	83	119	96	89	103
15-20	1,245	1,253	1,236	993	1,417	1,174	1,219	1,244	80	115	95	99	101
20-25	1,401	1,386	1,348	1,001	1,465	1,333	1,453	1,329	74	109	99	108	99
25-30	1,587	1,486	1,372	1,064	1,503	1,304	1,524	1,342	78	110	95	111	98
30-35	1,574	1,511	1,427	1,396	1,580	1,284	1,473	1,420	98	111	90	103	100
35-40	1,574	1,549	1,490	1,696	1,691	1,321	1,354	1,529	114	113	89	91	103
40-45	1,440	1,351	1,683	1,597	1,127	1,164	1,404	1,404	125	118	83	86	104
45-50	1,362	1,326	1,286	1,621	1,542	1,074	1,069	1,349	126	120	84	83	105
50-55	1,140	1,143	1,088	1,644	1,264	937	767	1,182	151	116	86	70	109
55-60	883	1,118	1,046	1,445	1,172	968	792	1,125	138	112	93	76	108
60-65		1,110	1,004	1,329	1,158	826	910	1,036	132	115	82	91	103
65-70		973	865	1,614	829	668	824	882	187	96	77	95	102
70-75	546	715	734	1,137	719	615	728	739	155	98	84	99	101
75-80		465	616	889	463	736	499	664	144	75	119	81	108
80-85		444	359	818	374	300	227	417	228	104	84	63	116
85+		241	310	544	440	359	76	420	175	142	116	25	135

Comparing different classes of area the table shows that the period of maximum mortality for males varied from 30-35 in the rural districts to 60-65 in London. For females, mortality was generally highest in the first quinquennium of life, but even excluding this the maximum in adult life was in no case later than 35-40. The difference in regard to the period of maximum mortality of females between the rural districts and all other classes of area is noteworthy. The rate at 0-5 is highest except in the rural areas, where it is exceeded by those for every age from 15 to 50, and while the rural rates are below the mean for the whole country at all other ages they exceed it at 20-35, at which ages the London rates are remarkably low. The latter feature is noticeable in the corresponding table for phthisis in last year's Report, the explanation being in all probability that movement from London to their country homes of infected female workers which has just been referred to.

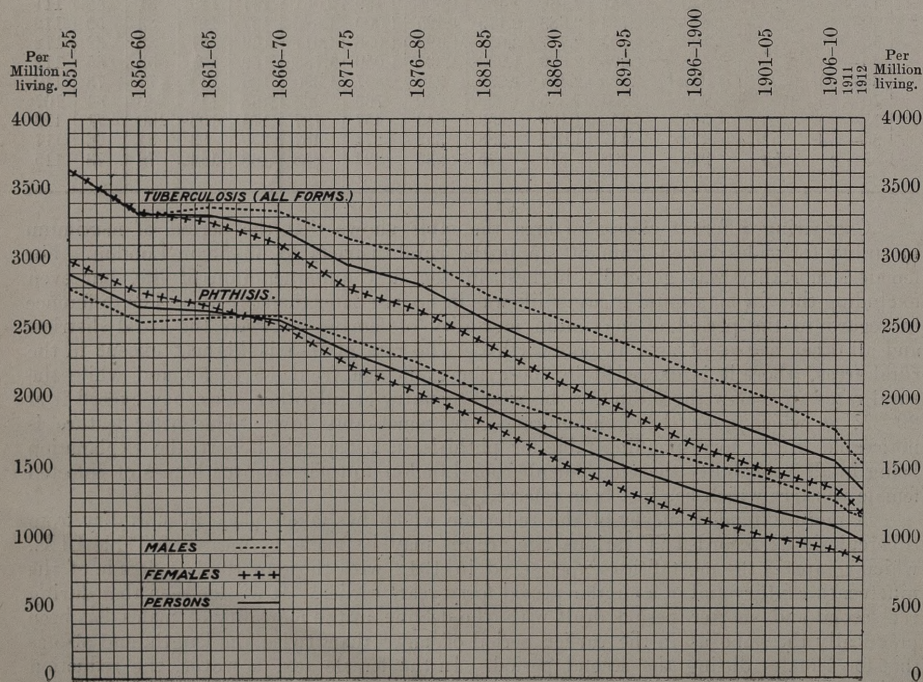
A more extended survey of the reduction which has taken place in mortality from tuberculosis as recorded at various age-groups may be made by means of Table LIX., which compares the mortalities experienced in 1912 with those of the last decade of the nineteenth century and of a similar period forty years earlier. It will be seen that during the second and shorter period dealt with the decline in the mortality of males has been practically the same as in the earlier period of more than twice the length, and also as that for females during the second period. In the female sex, however, the reduction during the first period was very much greater than amongst males (49 per cent. as

TABLE LIX.—ENGLAND AND WALES: TUBERCULOSIS (ALL FORMS).—MORTALITY PER MILLION LIVING, 1851-60, 1891-1900, and 1912.

Age Groups.	Males.						Females.						Both Sexes.					
	Death Rates.			Ratio per cent.			Death Rates.			Ratio per cent.			Death Rates.			Ratio per cent.		
	1851-60.	1891-1900.	1912.	(1) to (2)	(2) to (3)	(3) to (1)	1851-60.	1891-1900.	1912.	(1) to (2)	(2) to (3)	(3) to (1)	1851-60.	1891-1900.	1912.	(1) to (2)	(2) to (3)	(3) to (1)
	(1)	(2)	(3)	(2)	(3)	(1)	(1)	(2)	(3)	(2)	(3)	(1)	(1)	(2)	(3)	(2)	(3)	(1)
All Ages... (Standardized)	3,472	2,282	1,536	66	67	44	3,485	1,777	1,175	51	66	34	3,479	2,021	1,350	58	67	39
0—	6,393	4,347	1,947	69	45	31	5,232	3,516	1,696	67	48	32	5,780	3,930	1,822	68	46	32
5—	1,225	705	557	58	79	45	1,201	744	544	62	73	45	1,213	724	550	60	76	45
10—	1,102	521	425	47	82	39	1,595	818	657	51	80	41	1,346	669	541	50	81	40
15—	2,636	1,234	920	47	75	35	3,731	1,555	1,236	42	79	33	3,187	1,396	1,079	44	77	34
20—	4,245	2,102	1,486	50	71	35	4,430	1,788	1,348	40	75	30	4,342	1,936	1,413	45	73	33
25—	4,163	2,541	1,323	61	72	44	4,690	2,086	1,398	44	67	30	4,439	2,302	1,602	52	70	36
35—	4,119	3,251	2,230	79	69	54	4,293	2,264	1,426	53	63	33	4,208	2,742	1,813	65	66	43
45—	3,957	3,296	2,440	83	74	62	3,236	1,753	1,196	54	68	37	3,588	2,492	1,793	69	72	50
55—	3,479	2,768	2,359	80	85	68	2,523	1,344	1,027	53	76	41	2,982	2,007	1,656	67	83	56
65—	2,573	1,706	1,452	66	85	56	1,733	906	810	51	89	45	2,148	1,263	1,095	59	87	51
75 and upwards.	1,061	629	592	59	94	56	834	427	503	51	118	60	932	512	538	55	105	58

against 34 per cent.), so that notwithstanding the practical equality of improvement during the second period the mortality of females in 1912 was only 34 per cent. of that of 1851-60, as against 44 per cent. in the case of males. Taking the two sexes together it is encouraging to find that a reduction of 33 per cent. since the closing years of last century compares with the proportionately much smaller fall of 42 per cent. during the preceding forty years. Evidently, so far as the records enable us to judge, the rate of progress has tended to increase of late years. This may also be seen in Diagram VII., as well as the greater reduction in the mortality of females during the earlier portion of the period covered.

DIAGRAM VII.—ENGLAND AND WALES.—TUBERCULOSIS (ALL FORMS) AND PHTHISIS. STANDARDIZED MORTALITY IN QUINQUENNA, 1851-1910, AND IN 1911 AND 1912.



When the various age-groups are considered individually it is seen that if the earliest and the latest of the three periods are compared the reduction in mortality is almost exactly the same for both sexes until adult life is reached, the degree of reduction being especially striking during infancy and early childhood (0-5). The latter however is a recent feature, for during last century the improvement at 0-5 was less than at any other age up to 35 for males and less than for any other time of life at all for females. It is during the last few years that such great progress has been made at this age that the youngest children, instead of lagging behind their seniors, are now in advance of every other age in both sexes in regard to improvement shown.

After adult life is reached the decrease in mortality of males over the whole period dealt with begins to lag behind that of females, and in later life the difference becomes very pronounced, a decrease of 59 per cent. in the mortality of females aged 55-65 comparing with one of only 32 per cent. in that of males at the same age. This difference is in the main common to the two periods dealt with, but in the earlier it applied till the end of life, whereas in the later there has been more improvement amongst males after the age of 65. It will thus be seen that it is only during the working period of life that the improvement in mortality of males has been less than that of females, and this fact obviously suggests the conditions of their work as accounting for the difference. Some of the occupations involving the greatest risk of tuberculosis are confined to the male sex, and if conditions have improved less in the workshop than in the home, as is very possible in view of the improvement in the dietary of the working classes during the last sixty years, the difference in the experience of the sexes may be explicable by this fact. It is worth noting in this connexion that during the later of the two periods, when on the one hand the fall in the price of food has been arrested, and on the other the sanitary supervision of factories and workshops has been greatly developed, the difference between the sexes has been very much less than before.

The difference at adult ages is stated numerically in the following table:—

TABLE LX.—ENGLAND AND WALES: TUBERCULOSIS (ALL FORMS) PERCENTAGE REDUCTION IN MORTALITY OF MALES AND FEMALES.

	1851-60 to 1891-1900.			1891-1900 to 1912.		
	Males.	Females.	Males per cent. of Females.	Males.	Females.	Males per cent. of Females.
20—	50	60	83	29	25	116
25—	39	56	70	28	33	85
35—	21	47	45	31	37	84
45—	17	46	37	26	32	81
55—	20	47	43	15	24	63
65—	34	49	69	15	11	136
75—	41	49	84	6	+18	—

During the latter half of the nineteenth century the mortality of females was reduced to very much the same extent at all ages over 35, by which age females are comparatively little subject to factory and workshop conditions. The reduction in male mortality, however, varied greatly at different ages. It was less than 50 per cent. of that for females from 35 to 65, and from 35 to 55 it was actually less than in the very much shorter second period to 1912, in which the difference between the sexes in regard to improvement shown has been reduced to quite moderate dimensions. The tendency to increased mortality of late years amongst the aged is perhaps apparent rather than real. In view of the very much higher mortality recorded for old men and women in London than in the rest of the country (Table LVIII.) it may be surmised that improvement in diagnosis has much to do with the arrest of the fall previously recorded. (See Annual Report for 1911, page lxxiii.)

The experience of lunatic asylums may be invoked in favour of the hypothesis that the excess of mortality in males is due to the circumstances of their work. As may be seen in the tables on pages 324 and 325, the deaths of the two sexes in asylums from phthisis were approximately equal in number in 1912, and the returns published by the Lunacy Commissioners show that amongst the asylum population the phthisis mortality, which is very excessive, is approximately equal as a rule for the two sexes. Thus it is seen that in one instance at least where the circumstances of the sexes in regard to infection and of life are similar the resultant mortality is almost the same for both.

The forms of tuberculosis recorded on death certificates during 1912 are catalogued in detail, with the ages and sexes of the sufferers, in the table on pages 600-603, and the complications chiefly returned in the latter portion of the same table. The frequency of involvement of every organ and part of the body in fatal cases of the disease may be gathered from this table, so far as such involvement was considered by the certifier to have contributed materially to the fatal result. A single death of course frequently figures several times in such a table, as when more than one organ is mentioned as diseased an entry has been made under each one affected. Even this extensive list, however, is not complete, as it only refers to deaths allocated to tuberculosis and so omits a number of deaths where tubercle in some form was mentioned along with another cause of death selected for classification in preference to it. Details were given in last year's Report for such combinations of tubercle with the acute specific fevers in 1911.

28 and 29. **Phtthisis.**—This term, which is used to cover both pulmonary tuberculosis and 'phtthisis' not otherwise defined, includes the whole of Nos. 28 and 29 of the detailed International List of causes. The inclusion of 29B, acute miliary tuberculosis, in accordance with the international practice, implies a departure from the rule followed previously to 1911 in these Reports, which classed deaths so certified to general tuberculosis. The number of deaths affected in 1912 by the transfer is 814, and the total deaths from phtthisis as now defined amount to 38,083, of which 21,619 were returned as pulmonary tuberculosis, 12,706 as 'phtthisis,' 2,944 as *acute* phtthisis or pulmonary tuberculosis, &c., and 814 as acute miliary tuberculosis. Together these deaths form 76 per cent. of the total deaths from tuberculosis, and correspond to a rate of 1,039 per million living, or 7·8 per cent. of the total death-rate.

Details of the precise forms of return allocated to these four heads are supplied in the tables and lists relating to them on pages 575 *et seq.* On page 575, for instance, Table A states the numbers of deaths, with their age and sex distribution, and with distinction of those occurring in institutions for the sick or infirm, certified under the more commonly occurring forms of disease or combinations of diseases which are classed to pulmonary tuberculosis (28A). Thus of the 7,740 deaths so returned from institutions (of which those occurring in poor law establishments formed by far the larger portion—*see* pages 311 and 324) 6,121, or 79 per cent. were certified as due to tubercle of the lungs without mention of any complication, and of the 13,879 deaths in private houses included in the table, 10,316, or 74 per cent., were similarly certified. Tubercle of the lung and larynx was returned as the sole cause of death in 498 cases, and with complicating causes in 37 other cases (Table B, page 581). Tubercle of the larynx was returned in 861 cases; haemoptysis was recorded upon 800 certificates, tuberculous meningitis upon 319, and diabetes upon 85 (page 581). Of the 12,706 deaths from phtthisis, not defined as tuberculous, 10,944, or 86 per cent., were returned simply as due to 'phtthisis,' without qualification or complication. Twenty-three only were attributed to 'consumption,' and the ten of these as to which this term formed the sole statement of cause of death all occurred in private practice. Evidently this term is approaching complete desuetude for the purpose of death certification, therein following the course already taken by 'decline,' once a very frequent entry in the register, but of which not a single example occurred in 1912. Haemoptysis was mentioned in 499 of the cases allocated to 'phtthisis,' and diabetes in 91. Complete details of the forms of pulmonary tuberculosis certified and of its complications will be found in the tables and lists on the pages referred to.

The tables on pages 324-327, which this year supply for tuberculous diseases information as to age at death in conjunction with place of occurrence, afford further means of comparing certification in institutional and in private practice. Thus of the total number of deaths occurring in institutions and allocated to chronic pulmonary tubercle (28A and B), the tuberculous nature of the disease was mentioned on the certificate in almost three-quarters of the cases (75 per cent. of the males and 72 per cent. of the females), whereas the corresponding proportion in private practice was 58 per cent. for both sexes. The great bulk of the institutional deaths occurred in poor law establishments, and the proportion definitely certified here, 75 per cent. of males and 74 per cent. of females, was little below that so returned from hospitals—80 per cent. of males and 77 per cent. of females.

The tables on pages 311 and 324 serve to bring to light some interesting facts with regard to the use of institutions of various kinds for the treatment of phtthisis in persons of different ages and sexes, as shown by the deaths returned from them. In the following table are stated the proportions of total deaths at various ages which occurred in different classes of institutions for the sick, and elsewhere. The table refers to chronic phtthisis (28) only. The proportion of institutional deaths from acute phtthisis is lower (24 per cent.), being particularly low in the case of 29A, acute pulmonary tuberculosis.

TABLE LXI.—ENGLAND AND WALES, 1912.—DEATHS FROM CHRONIC PHTHISIS IN INSTITUTIONS AND ELSEWHERE PER CENT. OF TOTAL DEATHS AT VARIOUS AGES.

	All ages.	0-	5-	15-	25-	35-	45-	55-	65-
Poor law institutions	22·2	10	15	14	18	26	28	30	29
Lunatic asylums	4·0	—	2	2	5	4	4	5	6
Hospitals and nursing homes	4·4	18	9	6	5	4	3	1	1
Elsewhere	69·4	72	74	78	72	66	65	64	64
Total	100·0	100	100	100	100	100	100	100	100

It will be seen from the table that while the proportion of total deaths occurring in institutions of all sorts does not vary greatly with age, though it is least in youth and greatest at ages over 35, the class of institution serving the needs of the community varies greatly at different ages. Except in the case of the youngest children more deaths are returned from poor law than from all other institutions combined, but this proportion increases greatly with advance of age, while the similar proportion for hospitals diminishes with increasing age to an even greater degree. The figures for the two classes of institutions are in this respect most sharply contrasted; the hospital deaths are those of young persons, and the poor law deaths of the middle-aged and elderly.

Another peculiarity of the deaths in poor law institutions is that as age advances the deaths of males outnumber those of females in constantly increasing proportion, till at age 55-65 they form over four-fifths of the total. The figures are as follows:—

TABLE LXII.—DEATHS OF MALES FROM CHRONIC PHTHISIS IN POOR LAW INSTITUTIONS, PER CENT. OF DEATHS OF FEMALES AT THE SAME AGES.

All ages.	0-	5-	15-	25-	35-	45-	55-	65-
232	97	62	126	180	237	351	438	309

These remarkable figures may perhaps be explained, in part at least, by the economic crisis involved for a working class family by disablement of the breadwinner leaving no alternative but the workhouse, whereas if the wife and mother were the patient she could be kept at home. The great and steady increase in the proportions throughout the working period of life does not, however, seem to be completely explained in this way. Whatever the cause of the difference may be the figures have an obvious interest at the present time as indicating the type of patients for whom institutional accommodation is requisite on economic grounds.

TABLE LXIII.—PHTHISIS.—MORTALITY PER MILLION LIVING AT ALL AGES, 1906-10, 1911, and 1912.

		1906-10,	1911,	1912,	1912 (28 and 29).					
		(28 and 29A.)								
		England and Wales.			England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
Males	{ Crude rates ...	1,299	1,234	1,194	1,217	1,838	1,531	1,003	798	1,342
	{ Standardized rates	1,261	1,187	1,146	1,170	1,716	1,471	970	788	1,286
Females	{ Crude rates ...	926	901	852	873	995	1,012	779	758	906
	{ Standardized rates	913	887	837	860	947	990	770	778	885
Persons	{ Crude rates ...	1,106	1,062	1,017	1,039	1,391	1,261	887	778	1,115
	{ Standardized rates	1,082	1,032	986	1,010	1,319	1,222	867	783	1,079

Table LXIII., in so far as it supplies a comparison with years previous to 1911, necessarily applies to phtthisis as formerly understood in these reports, *i.e.*, to the present headings 28 and 29A. It shows that the standardized death-rate in 1912 was 4 per cent.

below that of 1911, and 9 per cent. below that of the five years 1906-1910, a rate of fall appreciably above the average (see Diagram VII).

TABLE LXIV.—PHTHISIS.—MORTALITY at DIFFERENT AGES, 1906-10, 1911 and 1912.

Table with columns for Mortality at Age-groups per Million Living (1906-10, 1911, 1912) and Ratio per cent. of Mortality in England and Wales (1912). Rows are categorized by Sex (Males, Females) and Persons, with age groups from 0 to 85.

The features of this table as regards relative incidence upon various classes of area are very similar to those of Table LVII. There is the same increase of mortality with urbanization, strongly marked in the male sex, and but slightly in the female, so that the excess of male over female mortality regularly increases from rural districts to London, just as shown for tuberculosis of all forms in Diagram VI.

TABLE LXV.—ENGLAND AND WALES: PHTHISIS.—MORTALITY per MILLION LIVING, 1851-60, 1891-1900, and 1912.

Table with columns for Males, Females, and Both sexes, categorized by Age-groups and Death-rates/Ratio per cent. Rows include All Ages... (Standardized) and various age groups from 0 to 75 and upwards.

This similarity extends also to Tables LVIII. and LXIV., the chief difference between them consisting in the absence from the latter table of heavy rates of mortality in early life. As tuberculosis in adult life is in great bulk phthisis it is natural that the tables should be very similar. The period of maximum mortality is the same for males in both tables, varying from 30-35 in the rural districts to 60-65 in London. For females it is 35-40 in all classes of area except the rural districts, where, as in the male sex, the period 30-35 suffered the highest mortality. The very heavy excess in the mortality of later life which characterises the London returns is for the most part greater in the case of phthisis than of tuberculosis in general.

TABLE LXVI.—PHTHISIS.—CRUDE DEATH-RATES per 1,000,000 LIVING, 1912.

Table with columns for All Ages and At Ages 65 Years and Upwards, categorized by Region (North, Mid-lands, South, Wales, England and Wales) and Sex (Males, Females, Persons). Rows include London, County Boroughs, Other Urban Districts, Rural Districts, and All areas.

Comparison of Tables LIX. and LXV. shows that during the earlier of the two periods dealt with the decline of mortality from phthisis was considerably greater than that from tubercle in general, but that of late years it has been less, this result being no doubt largely due to the very great recent decline of tubercle mortality at ages under five years already noted. (The recent decline in phthisis mortality at these ages is not nearly so great). At every age-group except 5-15 the decline in Table LXV. over the whole period has been greater for females than for males, the difference being greatest at ages 25-65, and being much more marked in the earlier than in the later of the two separate periods. In these respects the remarks made upon Table LIX. are equally applicable to Table LXV.

Table LXVI. reproduces for 1912 a similar table inserted in last year's Report. It shows, as in 1911, how great is the excess of phthisis mortality recorded for old men and women in London. It also shows that the excess of male over female mortality as well as its increase in proportion to urbanization is especially characteristic of old age. The higher mortality of females than of males at all ages in the rural districts and smaller towns of Wales forms a feature common to the tables for both years.

30. **Tuberculous Meningitis.**—The deaths classed to this head during 1912 number 5,002 at all ages, or 838 below the average of the previous five years, corrected for increase of population. As the deaths from simple meningitis were also below the quinquennial average there appears no reason to doubt the reality of the decrease.

Mortality from tuberculous meningitis has declined on the whole steadily throughout the last sixty years, and now amounts only to one-third of that returned at the commencement of that period. This decline is the more remarkable in view of the great increase during the same period in the proportion of our population living in towns, for Tables 25-28 show the extent to which mortality from this disease is increased by urban conditions of life. It is over twice as high for children under 5 years of age in London as for those of the rural districts generally, and nearly three times as high as in the rural districts of the Midlands.

As there is considerable liability to confusion between tuberculous meningitis and other forms of disease characterised by similar symptoms it may be of interest to examine the age-distribution of the deaths returned from poor law institutions, hospitals, and private houses respectively, the returns of which will be found on page 325. It is obvious of course that even with perfect diagnosis in all cases, identity of age-distribution could not be looked for, as age must exercise some influence upon the choice of institutional or private treatment. For this reason the facts are stated in the following table for London as well as for the country at large, since in London, where 52 per cent. of the total deaths from this cause occurred in institutions (37 per cent. in hospitals) as against 21 per cent. in the country at large (15 per cent. in hospitals) it may be held that the institution deaths, in the case of which diagnosis is largely checked by post-mortem examination, are likely to form a fairer sample of the whole than elsewhere.

TABLE LXVII.—AGE-DISTRIBUTION OF DEATHS FROM TUBERCULOUS MENINGITIS IN POOR LAW INSTITUTIONS, HOSPITALS, AND PRIVATE HOUSES, 1912.

—		Under 6 months.	6-12 months	1-	2-	3-	5-	10-	20-	All ages.
England and Wales	Poor Law Institutions.	6	10	12	7	11	18	19	17	100
	Hospitals ...	4	7	14	11	17	22	16	9	100
	Private houses ...	7	13	19	11	14	16	12	8	100
	Total ...	6	12	19	11	14	17	13	8	100
London	Poor Law Institutions.	6	12	11	8	16	18	20	9	100
	Hospitals ...	4	13	20	11	22	17	10	3	100
	Private houses ...	10	17	22	13	13	14	8	3	100
	Total ...	7	15	18	12	17	16	11	4	100

It will be seen that the age-distribution of deaths from this cause is very similar in London and in the country generally, except that the proportion of adults in London is only half that in the whole country.

The proportion of adults returned from poor law institutions is about twice as great as that from hospitals, or from private practice, and the poor law returns are high also in later childhood. The proportions returned from hospitals are low in the first year, and especially in the first six months, of life, both in London and elsewhere, and it seems probable that some of the earliest deaths returned from private practice may be due to mistaken diagnosis, though it will be seen that even in hospital practice an appreciable proportion—four per cent.—of the total deaths occurs in the first six months of life. Generally it may be said that the deaths returned from private houses are of younger children than those from institutions, though whether this difference is more than can be accounted for by the influence of age upon admission to institutions it is hard to say. On the whole the impression left by this test of the returns is that they are not very grossly inaccurate in any class of practice.

It will be seen from Table B, page 589, that the heading includes 82 deaths from tuberculous tumour of the brain (70 of 'brain' and 12 of cerebellum), and 16 cases of 'tuberculosis of the brain.' The age-distribution of these cases of tuberculous brain tumour differs entirely from that of tuberculous meningitis, 44 per cent. of the deaths having been those of adults. The proportion of the whole returned from institutions was also much higher than in the case of tuberculous meningitis proper (Table A).

A very high proportion of the total deaths—81 per cent.—was returned simply as due to tuberculous meningitis, without mention of any complication.

31-35. **Other Tuberculous Diseases.**—These account for 6,966 deaths, of which 3,246 were due to abdominal tuberculosis and 2,125 to disseminated tubercle. Details of the age and sex distribution of these forms of tuberculosis will be found, as in other years, on page 194, those of age in relation to place of death on pages 326 and 327, and those of the exact forms of disease returned and their complications on pages 589-599. These forms of tubercle are not infrequently returned in conjunction with tuberculosis of the lungs, and in all such cases the death is allocated to lung tubercle. For this reason the details given on pages 594 and 595 for example for tubercle of the joints do not include all fatal cases of joint tubercle, as even when the lung affection is returned as secondary to that of a joint it is selected for tabulation under the international scheme. Such deaths as these may all be found amongst the details regarding certification of deaths from pulmonary tuberculosis on pages 575-588, but as complete information in regard to tubercle of any one joint is here necessarily scattered over a number of different tables and lists, the total numbers of persons of different sexes and ages dying from each form of tubercle mentioned on the certificates of all deaths allocated to tuberculosis are stated on pages 600-602. It will be seen for instance from this table that the deaths from tubercle included those of 405 persons suffering from tubercle of the hip (including 'hip disease'), whereas the deaths allocated to this form of disease numbered only 242 (page 595).

In London nearly all the deaths from joint tubercle occurred in institutions, and nearly half of the total in the country at large (page 326). The proportion of deaths from joint tubercle occurring in young children is very small, and such as do occur are nearly all returned from institutions.

37. **Syphilis.**—A special study of the records of mortality caused by this disease during 1911 and 1912 was made for the purposes of the Royal Commission on Venereal Diseases, and the chief points which emerged from this examination may be briefly restated here. In order to increase the somewhat scanty basis of facts, the deaths registered in the two years 1911 and 1912 were considered jointly, and in some cases the census populations or those calculated for the middle of 1911 were employed in obtaining death-rates from these figures, in order to avoid the necessity of calculating the populations strictly required, *i.e.*, those at the end of 1911.

The deaths tabulated from the registers as due to syphilis clearly afford no measure of the absolute amount of mortality properly ascribable to the disease. This is inevitable under the present system by which the causes of death are certified, an open certificate being handed by the certifying practitioner to the relatives of the deceased, and subsequently included in a register open to inspection by any member of the public on payment of a small fee. The practitioner is obviously strongly tempted, in fact almost obliged, in many cases under this system to avoid mention on the certificate of the syphilitic nature of the disease he is returning as cause of death. Indeed the fact that such concealment is commonly practised is frequently illustrated both by correspondence with medical men who have issued purposely indefinite certificates, and by efforts made in certain cases to embody in the wording of the certificate a hint as to the true cause of death not likely to be understood by relatives. Considerations of this sort apply far less

to institutional than to private practice, and so it is to be expected that the proportion of deaths returned from institutions should be higher in the case of syphilis than of mortality in general. This is found to be the case, as shown in the following table.

TABLE LXVIII.—ENGLAND AND WALES, 1911 and 1912.—DEATHS in INSTITUTIONS per cent. of TOTAL DEATHS.

	All Ages.		Under 15 Years.		Over 15 Years.	
	Males.	Females.	Males.	Females.	Males.	Females.
Syphilis (1911-12)	41	39	33	33	59	52
All Causes (1912)	24	19	15	15	29	20

The proportion of the deaths from syphilis returned by institutions is double that of deaths in general, and in the case of adults more than half the total deaths ascribed to syphilis are returned from institutions. It is much more likely that this is due to greater under statement of these deaths in private practice than to exceptional resort to institutions by sufferers from syphilis.

The admittedly great defects in the returns do not, however, by any means deprive them of all value. Although they so greatly understate the number of deaths regarded by the practitioners certifying them as due to syphilis—a total to be distinguished from that of deaths actually due to syphilis—they appear to afford a very fair indication of the relative incidence of mortality from this disease upon different classes of area and of society. Fortunately moreover certain nervous and vascular diseases dependent upon syphilitic infection, general paralysis of the insane locomotor ataxy and aneurysm in particular, are not yet sufficiently identified in origin with syphilis in the public mind to forbid their being returned on death certificates almost if not quite as freely as other causes of death. The distribution of mortality from these diseases may be used as a test of the prevalence of syphilis, since their dependence upon syphilis is being recognised in ever increasing degree, and as this distribution can be ascertained with a fair degree of accuracy, that of syphilis itself can be approximately ascertained from the death registers, though not the mortality recognised by practitioners as due to it nor still less that properly ascribable to the disease. In so far therefore as the deaths assigned under present circumstances to syphilis itself approximate to a constant proportion of the true total, and are therefore of statistical value, to that extent their distribution should coincide with that of those assigned to the other causes referred to. It is found that this is the case to a very great extent.

The distribution throughout the country of syphilis itself and of the consequent diseases most closely associated with it, as indicated in the death returns, is shown in broad outline in Table LXIX.

The principal features of this table are great excess of mortality in the large towns and a fairly even distribution over the geographical sections of the country dealt with, with some tendency for the rates to be higher in the North and South than in the Midlands and Wales. The mortality from aneurysm is higher in the South than elsewhere in all classes of area, but it is possible that this may depend to some extent on greater efficiency in diagnosis. It will be seen that the urban excess is much greater for syphilis than for the other diseases quoted. It may be that this represents greater reluctance to certify syphilis in the country, but on the other hand it may imply a lower fatality from syphilis under the healthy conditions of rural life, whereas the other headings in the table would be less affected by environment, the cases falling under them being in great part of an inevitably fatal nature. In so far as this may be the case the relative prevalence of syphilis in town and country may be better judged of from the mortality of the consequential diseases, which also is greatly in excess in the large towns.

It may fairly be assumed from the general consistency of the rates in Table LXIX. that the returns of two years' deaths are sufficient to yield significant results for populations of the size dealt with, but the case is very different when comparison is made of syphilis in individual counties and county boroughs. If the returns formed a reliable indication of the prevalence of the disease in these areas we might expect approximate correspondence between the areas showing highest mortality at ages under 15 years (congenital disease) and over 15 years (acquired disease). This is, broadly speaking, true of the areas represented in Table LXIX., though the urban excess is far greater for children than for adults,

but when the correlation coefficients were worked out for counties and boroughs between mortality under and over 15 years of age no results of any significance were obtained, even after the smallest areas had been excluded as most liable to chance variation. The same statement applies to the ratio of syphilis to general paralysis of the insane and locomotor ataxy, a ratio the general consistency of which in Table LXIX. is very apparent. It may be hoped that when the results of a number of years have been accumulated they will prove to be of some value as applied to city and county populations.

TABLE LXIX.—MORTALITY from SYPHILIS and CERTAIN of its CONSEQUENCES, 1911 and 1912.

	Males.					Females.					Persons.							
	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.	North.	Midlands.	South.	Wales.	England and Wales.			
London																		
	Syphilis	—	—	90	—	90	—	—	—	57	—	57	—	—	—	73	—	73
	L.A. and G.P.I.*	—	—	195	—	195	—	—	—	41	—	41	—	—	—	113	—	113
	Aneurysm	—	—	87	—	87	—	—	—	24	—	24	—	—	—	54	—	54
	Total of above ...	—	—	372	—	372	—	—	—	122	—	122	—	—	—	240	—	240
County Boroughs.	Syphilis	92	86	98	92	90	60	63	45	63	59	75	74	70	78	74	74	74
	L.A. and G.P.I.*	162	156	166	171	161	35	39	39	20	36	96	95	98	96	96	96	96
	Aneurysm	58	53	118	56	63	11	11	16	4	11	34	31	63	30	36	36	36
	Total of above ...	312	295	382	319	314	106	113	100	87	106	205	200	231	204	206	206	206
Other Urban Districts.	Syphilis	51	51	53	46	50	36	38	32	26	36	43	44	41	36	43	43	43
	L.A. and G.P.I.*	112	119	130	101	117	31	23	26	19	26	70	69	75	61	70	70	70
	Aneurysm	37	49	70	30	47	9	8	11	4	9	22	28	39	17	27	27	27
	Total of above ...	200	219	253	177	214	76	69	69	49	71	135	141	155	114	140	140	140
Rural Districts.	Syphilis	23	26	28	17	24	18	17	19	18	18	21	22	23	17	22	22	22
	L.A. and G.P.I.*	100	84	85	70	86	29	21	23	18	23	65	52	54	44	54	54	54
	Aneurysm	27	34	51	24	36	5	7	8	7	7	16	20	29	16	21	21	21
	Total of above ...	150	144	164	111	146	52	45	50	43	48	102	94	106	77	97	97	97
All Areas	Syphilis	67	53	68	45	61	46	40	43	30	42	56	46	55	38	52	52	52
	L.A. and G.P.I.*	135	119	153	104	133	33	27	34	19	30	82	72	90	62	80	80	80
	Aneurysm	46	46	79	33	54	10	9	17	5	11	27	26	46	19	32	32	32
	Total of above ...	248	218	300	182	248	89	76	94	54	83	165	144	191	119	164	164	164

* Locomotor Ataxy and General Paralysis of Insane.

The rates for the separate sexes in Table LXIX. point in the same direction as those for persons. Thus the mortality for each sex increases rapidly with the change from rural areas to large towns, though rather more so for males than for females. The Welsh rates, outside the county boroughs, are also low for each sex, though a partial exception must be made for the females of the rural areas.

The fact that in making these statements it is not necessary to distinguish between the causes of death represented in the table furnishes strong evidence of the correspondence between the mortality recorded for syphilis and for the parasymphilitic diseases, and so of the utility of both as an indication of the real distribution of mortality from syphilis.

As the proportion of deaths from all causes occurring in institutions is highest in large towns and lowest in rural districts (page ciii), and as syphilis can be more freely certified in institutional practice, the excess of syphilis mortality in the towns might conceivably depend upon their greater reliance on institutions in sickness. To test this point the syphilis mortality of the areas dealt with in Table LXIX. was tabulated with distinction of that occurring in institutions and in private houses, and also of that under and over 15 years of age. In the result it was found that while acquired syphilis is returned almost as much in the rural districts as in the towns in private practice, institutional mortality of large towns shows an excess of almost 150 per cent. over that of the rural districts. Greater use of institutions in sickness might therefore very largely account for the excess of urban mortality so far as adults are concerned but fails to do so in the case of children, whose deaths form 68 per cent. of the total registered, for while the deaths ascribed to congenital syphilis in the institutions of the county boroughs are eight times as numerous in proportion to total population as those in the rural districts, those in private houses are four times as numerous. In these respects the experience of all parts of the country is very similar.

Distribution amongst Social Classes.—The mortality of various occupational and social classes from syphilis and diseases resulting from it is dealt with in Table LXX. The eight social groups dealt with are the same as those referred to on page xxiii. Their precise composition is indicated in Table XVI. The table is restricted to males

TABLE LXX.—ENGLAND AND WALES, 1911-12.—SYPHILIS, LOCOMOTOR ATAXY, GENERAL PARALYSIS OF THE INSANE, and ANEURYSM, DEATH-RATES, per 1,000,000 living, of MALES in various SOCIAL CLASSES.

	All Ages over 15 (Standardized).	15—	20—	25—	35—	45—	55—	65—	75—	
		SYPHILIS.								
All Classes	28	4	9	23	37	53	58	56	36	
Class 1	22	—	3	13	24	37	55	62	42	
" 2	31	14	11	32	33	60	43	35	21	
" 3	25	—	9	11	33	40	77	72	31	
" 4	31	4	15	26	38	73	47	41	52	
" 5	56	2	18	46	72	74	103	110	114	
" 6	12	—	—	16	31	17	—	31	—	
" 7	12	—	4	15	8	31	25	63	—	
" 8	9	—	—	4	11	35	8	11	—	
		LOCOMOTOR ATAXY.								
All Classes	37	0	—	6	40	98	147	134	87	
Class 1	65	—	—	10	46	167	186	255	167	
" 2	40	2	—	2	39	105	169	90	55	
" 3	40	—	—	4	35	89	123	156	92	
" 4	40	—	—	6	32	85	164	143	35	
" 5	56	—	—	11	59	113	175	127	182	
" 6	34	—	—	5	43	91	87	124	—	
" 7	22	—	—	8	25	54	82	84	—	
" 8	19	—	—	4	32	18	48	64	115	
		GENERAL PARALYSIS OF THE INSANE.								
All Classes	137	5	10	78	274	331	229	122	65	
Class 1	152	—	3	47	287	419	304	139	62	
" 2	137	17	15	69	241	362	181	118	28	
" 3	131	2	3	68	257	288	257	160	122	
" 4	137	—	9	92	293	275	268	92	70	
" 5	205	4	21	146	420	476	230	121	114	
" 6	103	—	32	47	153	249	202	155	—	
" 7	96	7	4	47	185	229	172	21	103	
" 8	50	—	6	35	54	118	95	118	57	
		ANEURYSM.								
All Classes	81	2	2	20	93	178	205	188	150	
Class 1	62	—	—	11	56	95	219	278	271	
" 2	72	5	4	20	73	178	200	166	90	
" 3	65	5	—	14	65	168	211	148	214	
" 4	96	2	—	33	148	202	223	210	174	
" 5	115	—	5	32	168	294	244	265	205	
" 6	37	—	—	5	18	100	159	124	228	
" 7	47	—	4	6	48	135	123	189	—	
" 8	31	—	—	9	48	47	111	54	29	
		THE ABOVE FOUR CAUSES TOGETHER.								
All Classes	283	11	21	127	444	660	639	500	338	
Class 1	302	—	6	81	413	718	763	734	542	
" 2	280	37	30	123	386	705	593	409	194	
" 3	264	7	12	97	390	585	673	536	459	
" 4	304	6	24	157	512	635	702	486	331	
" 5	429	6	44	235	719	957	752	623	615	
" 6	186	—	32	73	245	458	448	435	228	
" 7	177	7	12	76	266	449	402	357	103	
" 8	108	—	6	52	145	217	262	247	201	

over 15 years of age on account of its occupational basis, and as its death-rates were not referring to age-groups are standardized for variation in the age-distribution of the various classes they are directly comparable from this point of view.

Perhaps the most striking feature in the table is the uniformly low mortality of textile operatives, miners, and agricultural labourers from each of the four forms of disease dealt with. The last group especially yield very low standardized rates, one-third of the average in the case of syphilis and from that to one-half in the other cases. The uniformity of the records of these three groups under all four headings is most striking, and affords strong evidence of the general reliability of the syphilis returns as indicative of the relative distribution of the disease. Similar consistence is exhibited at the opposite end of the scale of prevalence, the rate for class 5, unskilled labourers, being highest for every cause except locomotor ataxy, and second highest there.

The high rates of this class are no doubt largely to be explained by the fact that men of careless habits are specially liable both to contract syphilis and to come down in the world, and hence do not necessarily imply that persons born in that rank of life suffer abnormally from syphilis and its consequences. The large proportion of their deaths occurring in institutions (for syphilis 78 per cent., see below) must also affect their figures. The predominance of class 1 in the locomotor ataxy list shows that no stigma as yet attaches to this form of disease.

Although the mortality of class 1 is highest for locomotor ataxy it is lowest of the five graded divisions of the social scale for syphilis itself. In view of the mortality recorded against it from the parasyphilitic diseases, this low position probably does not represent the facts. There are two reasons why a smaller proportion of men dying of syphilis should be recorded as doing so in class 1 than in other classes, the first being that a smaller proportion of their deaths occurs in institutions, and the second that the obstacles to candid certification in private practice are in all probability at their maximum in this class of practice. The following figures illustrate the first point. They show for each of the eight classes in Table LXX, the proportion occurring in institutions per cent. of total deaths from syphilis.

Class 1—31 per cent.

- " 2—46 "
- " 3—58 "
- " 4—60 "
- " 5—78 "
- " 6—55 "
- " 7—38 "
- " 8—45 "

Under all the circumstances it is remarkable that the syphilitic mortality recorded for class 1 is as large as it is, being not far below the average for all classes, and about twice as high as those of the three great single occupational groups, Nos. 6-8. The fact that mortality from aneurysm is below average in this class is not surprising if any importance is to be attached to the element of strain in its causation. The remarkably low aneurysm mortality of groups 7 and 8, notwithstanding the liability of miners and agricultural labourers to strain, may probably be regarded as a striking illustration both of the comparative freedom of these classes from syphilis and of the dependence of aneurysm upon syphilis. If it were not for this relationship the difference between the aneurysm mortalities of classes 5 and 8 would be hard to explain. It follows that mortality from aneurysm may be used with considerable confidence as a measure of the prevalence of syphilis.

Taking all the circumstances into consideration the conjecture may be hazarded that syphilis is most prevalent among the highest and lowest of the five social classes dealt with; and the three great industries of textile manufacture, mining, and agriculture are in all probability exceptionally free from the disease.

Sex-distribution of mortality.—As the distribution throughout society of syphilis and the other diseases dealt with in Table LXX, has so much in common, it might be expected that the sex-distribution of their mortality would also be similar. This is not however the case. From syphilis returned as such there is an excess of mortality in the male sex amounting to about 30 per cent. under 15 years of age and about 70 per cent. at higher ages in 1911-12, the excess being naturally greater for the acquired than for the congenital form of disease. In the cases of locomotor ataxy, general paralysis of the insane, and aneurysm on the other hand the excesses in the mortality of males over that of females amount to 300-400 per cent., the rates for males in 1911-12 being respectively 508, 423, and 486 per cent. of those for females. Possibly this difference

may in part at least be explained as an effect of the concealment of the facts in regard to syphilis. If the disease while affecting males of all classes were largely confined amongst women to the lower ranks of society, the suppression of the facts on death certificates might understate the true number of deaths more in the case of males than of females. There is some reason for supposing that the distribution of the disease may differ in this way in the two sexes, but the difference in excess of mortality in the male sex is so great that it may be doubted whether the suggested explanation is adequate alone to account for it.

As the male excess for congenital syphilis is comparatively small it is of interest to compare with it that of general paralysis of the insane occurring in young persons and therefore presumably dependent upon the congenital form of syphilitic disease. (There is practically no mortality registered from locomotor ataxy or aneurysm under 25.) As the number of such deaths in any one year is small, they have been summed together for the 12 years from 1901, when the disease was first separately tabulated; and as there may be room for difference of opinion as to the age-periods to be selected as best representing congenital syphilitic infection the figures are compared by separate age-periods up to 35 years, as follows:—

TABLE LXXI.—DEATHS FROM GENERAL PARALYSIS OF THE INSANE—(ENGLAND AND WALES), 1901–1912.

	0–	5–	10–	15–	20–	25–35
Males	1	9	27	98	163	2,417
Females	—	9	24	61	104	759

It will be seen that in childhood the excess of male mortality is less than that from syphilis at the same time of life; and that after 25, when the disease must be supposed to have originated in acquired syphilis in the great bulk of cases, the great excess of male mortality is established. From 15 to 25 the position is intermediate between those of the years above and below, and it may be that at these ages the deaths partly represent congenital and partly acquired syphilis, though it might have been expected that under 20 years of age at least the proportion due to the acquired disease would be very small.

It may be added that in the returns as published practical equality (in the number of deaths) between the sexes is again reached in old age. Probably however the bulk of the deaths in the tables at this time of life are cases returned as “general” in the sense of “generalised” paralysis, and not “general paralysis of the insane” at all, for in 1911 and 1912 their number has fallen to less than half its previous height as a result of inquiry into the meaning of such certificates.

Registration records of syphilis mortality.—The question whether mortality from syphilis is increasing or decreasing in this country cannot be decisively answered from the registration statistics, on account of their defective nature, for it cannot be determined with certainty whether there is more or less suppression of the facts at the present day than in earlier years. It may be pointed out, however, that as the proportion of deaths occurring in institutions has increased very much of late years the reasons for suppressing the facts have to some extent been diminished on this account; and that in so far as failure to record syphilis as a cause of death is dependent not upon reticence but upon failure to recognise the syphilitic nature of the disease causing death, the progress of medical knowledge in recent years must have tended to increase in the number of deaths ascribed to syphilis. In view of these influences tending towards increase in the proportion of deaths from syphilis certified as such, and of the increasing urbanization of the population, which would in itself tend to increase of syphilis mortality, the disease being one particularly affecting town populations, it is interesting to find that the mortality from syphilis, as tabulated in these Reports, has been falling since about 1886. In that year it stood at 81 deaths per million persons living, but since then the highest rate recorded has been 74, in 1887, and since 1897 it has not been as high as 60, standing now at 51 (Table 20). For about 20 years prior to 1887 the rate had been 80 or more, but never reached 90 per million. This maximum period was preceded by one of rise even more marked than that of fall which succeeded it. In 1850 the rate stood only at 31 per million, and in 15 years had risen to 81, in 1865. Such an increase as this suggests some change in classification as a possible explanation, but the rise was fairly well distributed over the period, which is not characteristic of the effect of a change in

classification, and the records of the department indicate no such change which could in any way account for the increase. In fact the figures relating both to syphilis and to the parasymphilitic diseases are exceptionally free from this disturbing influence.

The records of general paralysis of the insane and of locomotor ataxy throw little light on this matter, since they go back only to 1901, *i.e.* to a date since when the mortality ascribed to syphilis itself has changed very little. During this period of 12 years the mortality from locomotor ataxy has shown a slight rise and that from general paralysis of the insane a slight fall.

Aneurysm has been separately tabulated as long as syphilis, but its mortality has not fluctuated so much. From 1850 to 1865 a very considerable increase accompanied the great increase in mortality of syphilis. This continued during the next 10 years, after syphilis had ceased to increase; the level then reached was maintained till 1886, after which a slight fall occurred along with the greater fall in syphilis. A change in method of classification in 1901, giving aneurysm greater precedence for tabulation than formerly over other diseases recorded on the same certificate, has tended to obscure this fall, but it may be said that from 1901 onwards there has been little change recorded in the mortality from syphilis, locomotor ataxy, general paralysis of the insane, or aneurysm.

39–45. *Cancer.*—The deaths ascribed to cancer or malignant disease during 1912 numbered 37,323, of which 23,495 were referred to carcinoma, 2,164 to sarcoma, and 11,664 to “cancer,” not otherwise defined. The proportion of the latter ingredient in

TABLE LXXII.—CANCER.—DEATH-RATES per MILLION POPULATION, 1906–10, 1911 and 1912.

		1906–10.	1911.	1912.					
		England and Wales.		England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
Males ...	Crude rates ...	819	891	913	1,070	901	844	968	901
	Standardized rates	770	823	844	1,020	910	813	735	885
Females	Crude rates ...	1,052	1,088	1,117	1,212	1,071	1,104	1,166	1,108
	Standardized rates	986	998	1,025	1,126	1,057	1,033	927	1,058
Persons	Crude rates ...	939	993	1,019	1,145	989	978	1,067	1,009
	Standardized rates	882	914	937	1,075	986	926	834	974

the total is steadily diminishing. The mortality of males was 913 per million living as compared with 891 in 1911, and that of females 1,117 as compared with 1,088. In the case of each sex these rates are the highest on record.

TABLE LXXIII.—CANCER.—DEATH-RATES per MILLION LIVING, 1906–10, 1911 and 1912.

Sex and Age.	1906–10.	1911.	1912.					
	England and Wales.		England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	All Urban Districts.
0–	24	28	22	23	20	24	21	22
15–	45	49	44	57	39	48	39	46
25–	113	112	103	118	114	98	85	108
35–	422	274	279	374	338	258	172	308
40–		586	625	765	689	588	516	656
45–	1,589	1,269	1,269	1,668	1,474	1,094	1,049	1,337
50–		2,237	2,195	2,746	2,493	2,141	1,624	2,378
55–	4,051	3,491	3,702	4,126	4,005	3,619	3,283	3,851
60–		5,224	5,502	6,978	6,080	5,043	4,826	5,759
65–	6,967	6,939	6,930	8,344	7,306	6,976	6,020	7,320
70–		8,663	9,135	10,850	9,918	9,079	8,013	9,667
75–	8,345	9,447	9,758	11,125	8,839	9,586	10,211	9,563
80–		8,490	8,911	10,476	9,470	8,275	8,790	9,019
85 and upwards	7,928	7,377	8,239	9,371	8,442	8,227	7,928	8,479

therefore, that these peculiarities of age distribution are of significance, though their explanation may not always be apparent at present. The maximum mortality from uterine cancer does not as a rule occur so late in life as it did in 1912.

TABLE LXXIX.—ENGLAND AND WALES, 1912.—SITES OF FATAL CANCER : PERCENTAGE OF DEATHS AT VARIOUS AGES TO DEATHS FROM CANCER OF THE SAME SITE AT ALL AGES.

		0—	25—	35—	45—	55—	65—	75—	85—	All Ages.
MALES.										
Tongue	{ Instn. ...	—	—	6.5	26.3	37.9	23.3	5.5	0.5	100.0
	{ Private ...	—	0.4	5.5	21.8	34.6	27.9	9.2	0.6	100.0
Esophagus	{ Instn. ...	0.2	0.2	6.5	28.2	37.2	23.6	3.9	0.2	100.0
	{ Private ...	0.1	0.5	2.9	19.9	37.9	27.0	11.1	0.6	100.0
Stomach	{ Instn. ...	0.5	3.0	11.0	22.5	31.9	24.6	6.3	0.2	100.0
	{ Private ...	0.1	0.9	6.0	15.7	31.3	34.1	10.8	1.1	100.0
Liver and gall bladder	{ Instn. ...	1.4	1.4	8.5	22.2	30.7	25.9	9.2	0.7	100.0
	{ Private ...	0.5	0.4	4.0	14.1	31.7	34.6	13.9	0.8	100.0
Intestines	{ Instn. ...	1.0	2.5	8.8	21.2	33.0	28.0	4.9	0.6	100.0
	{ Private ...	0.8	1.1	5.5	12.6	26.9	36.4	15.0	1.7	100.0
Rectum	{ Instn. ...	0.7	2.9	6.3	20.4	33.9	28.5	6.8	0.5	100.0
	{ Private ...	0.7	1.2	4.8	14.6	27.5	33.1	16.3	1.8	100.0
Skin	{ Instn. ...	—	3.6	5.2	13.4	23.7	28.8	19.1	6.2	100.0
	{ Private ...	1.1	1.1	6.3	9.6	21.0	27.9	27.3	5.7	100.0
Other organs	{ Instn. ...	6.1	4.1	9.9	21.6	29.4	21.2	6.7	1.0	100.0
	{ Private ...	3.4	3.0	6.3	18.0	28.6	28.5	11.0	1.2	100.0
All sites	{ Instn. ...	2.5	2.7	8.8	22.3	31.8	24.2	6.8	0.9	100.0
	{ Private ...	1.3	1.4	5.4	16.1	30.0	31.8	12.7	1.3	100.0
FEMALES.										
Esophagus	{ Instn. ...	1.9	3.8	21.2	19.2	30.9	19.2	3.8	—	100.0
	{ Private ...	—	3.0	10.3	21.0	24.3	23.0	16.7	1.7	100.0
Stomach	{ Instn. ...	0.5	4.5	10.2	26.4	29.7	21.6	6.4	0.7	100.0
	{ Private ...	0.0	0.7	5.3	15.4	26.5	35.0	15.4	1.7	100.0
Liver and gall bladder	{ Instn. ...	0.7	2.4	7.8	20.3	31.8	24.1	10.2	2.7	100.0
	{ Private ...	0.4	1.0	4.0	14.7	28.3	35.0	15.0	1.6	100.0
Intestines	{ Instn. ...	0.6	2.5	14.4	22.4	28.7	24.5	5.6	1.3	100.0
	{ Private ...	0.2	1.1	3.9	13.5	24.7	34.7	18.9	3.0	100.0
Rectum	{ Instn. ...	1.3	6.0	8.2	21.9	29.4	26.3	6.0	0.9	100.0
	{ Private ...	0.4	1.9	6.3	14.1	25.5	33.4	16.4	2.0	100.0
Uterus	{ Instn. ...	0.6	3.2	20.2	31.9	24.0	14.7	5.1	0.3	100.0
	{ Private ...	0.1	2.6	14.0	29.2	29.0	18.0	6.6	0.5	100.0
Breast	{ Instn. ...	—	1.8	12.2	28.1	25.0	21.1	9.5	2.3	100.0
	{ Private ...	0.0	1.8	12.9	24.8	25.1	21.2	11.7	2.5	100.0
Skin	{ Instn. ...	1.4	4.1	4.1	8.2	12.3	38.4	26.0	5.5	100.0
	{ Private ...	0.7	2.1	5.2	7.6	11.8	27.4	33.0	12.2	100.0
Other organs	{ Instn. ...	8.1	7.4	11.8	23.2	22.9	18.8	6.8	1.0	100.0
	{ Private ...	4.1	2.9	8.7	19.4	24.8	25.2	12.7	2.2	100.0
All sites	{ Instn. ...	2.1	4.1	13.3	25.5	26.0	20.7	7.1	1.2	100.0
	{ Private ...	0.8	1.8	8.6	19.8	26.1	27.5	13.4	2.0	100.0

Just under a quarter of the cancer deaths of the year occurred in institutions, 30 per cent. in the case of males and 19 per cent. in that of females. The object of the separate tabulation of institutional deaths in Tables LXXV., LXXVI., LXXVIII., and LXXIX. is to compare the experience of institutions, where presumably the details of the cause of death have as a rule been confirmed by post-mortem examination, with the certification of other deaths from cancer in the case of which such facilities are as a rule lacking. The various classes of institutions contributed the following proportions to the total institutional deaths dealt with in Tables LXXV. and LXXVI. (see pages 312 and 313)—poor law institutions 52 per cent., lunatic asylums 4 per cent., and hospitals and nursing homes 44 per cent. The proportion of poor law to hospital deaths was considerably higher in London and the county boroughs than in the smaller towns and rural districts. It was highest in the case of cancer of the buccal cavity and of the skin (Table LXXX.) whereas the proportion occurring in hospitals was highest for cancer of the peritoneum, intestines and rectum, and of the rarer sites as a whole. This experience exactly confirms that of 1911, and as pointed out in the Report for that year may be due to (1) greater severity of the operations for cancer of certain sites, leading to deaths in hospital, or (2) greater relative frequency of cancer of certain sites amongst that section of the population which furnishes the deaths in poor-law institutions. Both of these factors so far as operative must tend to a different distribution of cancer amongst persons dying in and outside institutions.

TABLE LXXX.—ENGLAND AND WALES, 1912.—PERCENTAGE OF TOTAL DEATHS FROM CANCER OF VARIOUS SITES OCCURRING IN VARIOUS CLASSES OF INSTITUTIONS.

Site of Cancer, and International List Number.	Occurring in Poor law Institutions.	Occurring in Hospitals.	Occurring in Other Institutions.
Buccal cavity (39)	26	9	1
Stomach, liver, &c. (40)	11	8	1
Peritoneum intestines and rectum (41)	10	15	1
Female genital organs (42)	13	9	1
Breast (43)	9	6	1
Skin (44)	23	5	1
Other or unspecified (45)	12	14	2
All Sites	12	10	1

A third reason for divergence between the returns from institutional and private practice lies in the fact that the average age at death is lower in institutions than elsewhere. Table LXXIX. shows that the maximum number of deaths from cancer of most sites occurs at 55-65 in institutional, and at 65-75 in private practice. This may be due to the fact that it is easier to keep at home during their fatal illness persons too old to contribute to the support or care of a family than those whose incapacity involves the breaking up of the home. If so the comparative frequency in institutions of deaths at the earlier ages may be compared with their greater share in the mortality of males than of females.

In view of these and probably other reasons for divergence between the distribution of institutional and other deaths the differences brought out in Table LXXVIII. are on the whole not very striking. Cancer of the liver is much less frequently returned in institutional practice, and this undoubtedly implies that increased facilities for diagnosis have brought about better certification, as primary disease of the liver is rare. The site of commonest occurrence was the same for males at all ages between 25 and 85 both in institutions and elsewhere, namely, the stomach. Amongst females the uterus comes first at all ages from 25 to 65 in both classes of practice. After 65 cancer of the breast caused most deaths in institutions as it did also in private practice in extreme age, the stomach coming first in this case from 65 to 85. From 25 to 55 the comparative frequency of cancer of the female breast was much less in institutions than elsewhere, whereas after 65 it was rather greater. Table LXXIX., however, shows that the proportion of early to total deaths from cancer of the breast is almost exactly the same in institutional and in private practice. But for most other cancers, and particularly for cancers of the digestive system, a much larger proportion of the total deaths occurs at the earlier ages in institutions than elsewhere. As the institutional deaths of women from cancer in general occur earlier in life than the average of all cancer deaths while there is no corresponding preponderance of early mortality in institutions in the case of breast cancer, it follows that early institutional deaths from breast cancer are infrequent compared with

institutional cancer experience in general, though not compared with breast cancer experience in general. All these statements apply equally well, except in a few trivial details, to the returns for 1911 as for 1912.

46. **Other Tumours (situation undefined)** :—This title includes only tumours not ascertained to be malignant, and of which the situation either cannot be ascertained or is of a general or ill-defined nature. Other benign tumours are classified under the organ affected.

The total number of persons returned as dying from ill-defined tumours is so small—71 males and 75 females—that there is no possibility of any appreciable shortage in the cancer figures from the improper return under this heading of deaths from malignant disease.

These deaths have been tabulated according to the nature of the tumour, but as the numbers are so small full details will be published only when the accumulated experience of several years can be tabulated together. In the male sex 45 of the 71 deaths were returned as due to tumour of the mediastinum, and 2 others to thoracic tumour; while 34 deaths of females were attributed to tumour of the abdomen or pelvis and 19 to mediastinal tumour.

TABLE LXXXI.—ENGLAND AND WALES, 1912.—DEATHS FROM TUMOURS NOT RETURNED AS MALIGNANT WHICH HAVE BEEN CLASSED TO DISEASE OF THE PART OF THE BODY AFFECTED.

Part affected.	All Ages.		0—		15—		35—		45—		55—		65—		75—	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
	TUMOURS OF BENIGN NATURE.															
Spinal cord, fibroma ...	1	1	—	—	—	—	1	—	—	—	—	—	1	—	—	—
Nose, polypus ...	6	6	—	1	2	1	2	1	1	—	1	1	—	1	—	1
Larynx ...	5	2	4	1	—	—	—	—	—	—	—	1	1	—	—	—
Thyroid, adenoma ...	—	4	—	1	—	1	—	—	—	—	—	1	—	1	—	—
" cystic ...	4	5	1	—	2	1	—	—	—	—	—	1	—	1	1	2
" (other benign)	—	2	—	—	—	—	—	—	—	1	—	—	—	1	—	—
Lung ...	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Intestine ...	4	8	—	—	2	1	—	1	—	3	—	1	1	—	1	2
Liver ...	2	3	—	1	—	—	—	—	—	—	2	—	—	—	—	—
Pancreas, adenoma ...	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
" cyst ...	3	6	2	—	—	1	—	1	—	3	—	1	1	—	—	—
Kidney ...	2	5	—	—	—	—	—	2	1	1	—	1	1	—	—	1
Bladder, villous or papilomatous.	71	14	—	1	—	—	7	2	7	1	15	3	30	4	12	3
Bladder, myxoma ...	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
" (other benign)	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Prostate, adenoma ...	31	—	—	—	—	—	—	—	—	—	8	—	14	—	9	—
" (other benign)	4	—	—	—	—	—	—	—	—	—	—	—	1	—	3	—
Broad ligament, cyst ...	—	5	—	—	—	3	—	2	—	—	—	—	—	—	—	—
" " fibro-myoma.	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Other sites ...	11	11	2	2	3	1	—	2	3	1	1	1	2	2	—	2
All sites ...	148	74	9	8	10	12	9	12	12	10	29	11	52	10	27	11
TUMOURS OF UNKNOWN NATURE.																
Spinal cord ...	4	3	—	—	1	1	—	—	2	1	—	—	1	1	—	—
Nose ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Larynx ...	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—
Thyroid ...	—	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—
Lung ...	10	4	—	—	3	—	3	—	—	—	1	—	2	1	1	
Intestine ...	7	11	—	—	—	1	—	—	2	—	1	1	3	7	1	2
Liver ...	7	7	—	—	—	1	—	—	1	1	2	1	1	2	3	2
Pancreas ...	3	4	—	—	—	—	—	—	1	2	1	—	1	1	—	1
Kidney ...	—	3	—	—	—	—	—	—	—	—	—	1	—	1	—	1
Bladder ...	9	4	—	—	—	—	—	2	3	—	—	—	5	1	1	1
Prostate ...	4	—	—	—	—	—	—	—	—	—	1	—	2	—	1	—
Broad ligament ...	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Other sites ...	8	8	1	1	1	2	1	—	3	1	1	1	1	2	1	1
All sites ...	52	48	1	1	5	7	4	3	15	5	6	6	13	17	8	9

In addition to the 146 deaths assigned to this heading and to the 772 deaths from cerebral tumour (74 C.) and 614 deaths from tumours of the female genital organs (129 and 131) there were 322 deaths from tumours of other parts of the body which under the international scheme of classification have been referred to the titles relating to the organs in question. Thus of the 200 deaths of males so dealt with 82 were attributed to tumour of the bladder, and are included amongst the 997 deaths of males referred to title No. 124 (page 210). Particulars of some only of these tumours are given in the preceding table, the remainder being reserved for future statement along with the accumulated results of subsequent years.

It will be seen that the possibilities of addition to the cancer death-rate from this source are very limited, as the inclusion of the whole 100 deaths from tumour of unascertained nature would leave it practically unaffected.

The completeness of the cancer returns can be further checked by the details of deaths referred to titles 74 C., 129, and 131, which may conveniently be dealt with here in order to complete the list of non-malignant tumours.

The 772 deaths from cerebral tumour (74 C.) include 397 of males and 375 of females. In 614 of these cases the nature of the growth was not ascertained, in 127 cases it was returned as glioma, and in the remaining 31 in various other ways. It must be borne in mind that neither cancerous, syphilitic, nor tuberculous growths are included under this title. The numbers of syphilitic and tuberculous growths can however be stated for 1912 from the tabulation of deaths by secondary causes. They were :—Syphilitic growths 43 males and 22 females (page 608); tuberculous growths 50 males and 40 females. Cancer of the brain is shown in Tables LXXV. and LXXVI. to have been returned as the cause of death of 100 males and 61 females. These additions bring up the grand total of deaths from cerebral tumour to 1,088—590 males and 498 females.

The 326 deaths referred to uterine tumour (129) include 304 from fibroid, fibromyoma, myoma, &c. and 18 of which the nature could not be ascertained.

The 288 deaths from ovarian tumour include 177 from "ovarian cyst" and 24 from tumours of a cystic nature otherwise described. In the case of 72 others the nature of the tumour was not stated. From these particulars it is possible to form some idea of the extent to which the returns of malignant disease may be understated by failure to record the malignant nature of growths whose existence has been recognized. Even if all growths the nature of which is unstated were assumed to be malignant the mortality ascribed to cancer would not be greatly increased.

47. **Rheumatic Fever.**—The deaths allocated to this cause in 1912 numbered 1,969, representing a mortality of 54 per million living. Separate tabulation of these deaths was commenced in 1901, since when the mortality has fluctuated between 67 (in 1901) and 47 (in 1910) per million living. From 1881 to 1901 a number of deaths now assigned to cardiac valvular disease were returned, as "rheumatism of the heart," along with rheumatic fever, and previous to 1881 other changes had been made which render it impossible to compare with any precision the relative frequency of this form of return at different periods.

From 1881 to the end of last century the mortality ascribed to "rheumatic fever, rheumatism of heart" showed a slight decline, the death-rates varying from 74 to 107 deaths per million living. On the whole, while the difficulties of comparison do not permit of any definite statement, the evidence points to some diminution in recent years in the frequency with which this disease is returned as the cause of death.

Comparing mortality in town and country, no very striking differences are met with, but in the two years for which the comparison can be made, the county boroughs have suffered the highest mortality, followed in order by the smaller towns, London, and the rural districts. The following are the figures, in the form of death-rates per million living :—

	1911.	1912.
London ...	52	49
County boroughs ...	60	59
Other urban districts ...	56	54
Rural districts ...	45	49

Hospital statistics in London appear to show that the disease is most prevalent in the autumn, but the seasonal mortality returns of 1912 (pages 296, 297) show no evidence of this. They do show that in this particular year, at least, the mortality in London, as in the country at large, was appreciably lower in the two summer than in the two winter quarters. Thus the proportion of the year's deaths registered in its second and third

quarters was 43 per cent. in London, and 44, 50 and 38 per cent. in the county boroughs, smaller towns, and rural districts, respectively.

Rheumatic fever is a disease especially fatal to childhood; the largest number of deaths at any age-period for both sexes occurred at 10-15. Forty-five per cent. of the total deaths were of persons under 20 years of age, the remainder being widely spread over the adult ages. There were more deaths of females than of males at most ages.

48c. Gout.—The number of deaths assigned to gout in 1912 was 354, 276 of the deceased being males and 78 females. These deaths represent a mortality only about half that returned 20 years ago. For many years up to about 1895 the annual mortality is recorded as about 20 per million living, whereas from 1853 to 1868 it varied from 12 to 18 and in 1912 it was 10 only. The ratio of male to female deaths, about 4 to 1, has remained almost constant, and the age distribution, showing the maximum number of deaths at the age-period 65-75 in both sexes, not less so.

The relation of mortality to urban or rural conditions of life is a curious one. The mortality in London in 1912 was 15 per million living, and 8, 9 and 10 per million in the county boroughs, smaller towns, and rural districts, respectively. In 1911 the distribution of mortality between these populations was much the same, the order being as in 1912, London, rural districts, smaller towns, county boroughs. For many years London has furnished 20-25 per cent. of the total deaths from gout in the whole country, though its population has been only about one-seventh of the whole. This is the more remarkable in view of the absence in 1911 and 1912 of any tendency to higher mortality in the cities outside London. Possibly the disease is more fatal in the South of England than in the North; such points as this can only be effectively tested when it becomes possible to assemble the facts for several years for the purpose of examining the various questions which arise in greater detail than can profitably be employed with regard to the facts of a single year.

Few deaths from gout are returned from hospitals, only 6 in 1912 as against 37 from poor-law institutions and 311 by private practitioners (page 313). In view of these figures the higher mortality in London can scarcely be explained as a consequence of greater facilities for accurate diagnosis.

In all classes of area the mortality was lowest in the third quarter of the year and generally highest in the first (pages 296, 297.)

56. Alcoholism.—This heading differs from the "alcoholism, delirium tremens," of the list in use prior to 1911 in that, in accordance with international practice, it excludes organic disease attributed to alcoholism. Thus alcoholic cirrhosis of the liver, formerly referred to alcoholism, is now tabulated with other deaths from the same disease which are not stated to have been of alcoholic origin. As may be seen from page 208 the latter form the immense majority of the returns under this head. As most cases of the disease are generally considered to be of alcoholic origin it may be assumed that the omission to state the fact in certification should not be taken as an indication that any given case is considered not to be of this nature. It is therefore preferable that alcoholic cirrhosis should be grouped with other deaths from that disease, the returns of which are probably made fairly complete by its inclusion, rather than with those from alcoholism, the returns of which cannot possibly be made even approximately complete.

The effect of the change may be gathered from comparison of the number of deaths (547) from alcoholism in the new list on page 196 with that (1,650) referred to the same heading in the old list in Table 19. Table 20 shows that there has been a very rapid decline in the mortality attributed to this cause in recent years, the death-rate, which reached 113 per million living so recently as 1900, now standing at 45 only. There is undoubtedly great reluctance in many cases to certify this cause of death, and it may be that this reluctance is increasing. It is also possible that the names alone of diseases commonly arising from intemperance may be left more frequently now than in former years to convey the story of their causation even where there is no incentive to suppress the facts. In the absence, however, of reason for making such assumptions, the returns, while they cannot be regarded as at all reliable, certainly suggest a very satisfactory fall in mortality from this cause.

In order that the change in classification referred to above might not lessen the information afforded with regard to mortality from over indulgence in alcohol, all the death certificates in which any mention of alcohol appears (other than those referred to alcohol itself) have been assembled in Table LXXXII.

It will be seen that these deaths, added to those referred primarily to alcohol, make up a total of 1,894, or only 244 in excess of the 1,650 referable to the old heading.

The difference is partly accounted for by causes of death formerly selected in preference to alcoholism when recorded in conjunction with it. As it is comparatively small, the numbers in Table 19 may be regarded as forming a fairly complete statement of the deaths certified to have been in any way dependent upon intemperance.

TABLE LXXXII.—ENGLAND AND WALES, 1912.—DEATHS OF WHICH ALCOHOLISM WAS RECORDED AS A SECONDARY CAUSE.

	All Ages.		Under 25.		25—		35—		45—		55—		65—		75—		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
10. Influenza	6	2	1	—	—	—	3	1	—	—	—	—	—	—	—	—	—
18. Erysipelas	3	1	—	—	—	—	1	—	—	—	—	2	—	—	—	—	—
20b. Septicæmia	4	1	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—
28, 29. Phthisis	17	9	—	—	3	3	3	2	6	3	5	—	—	—	—	—	1
30-35. Other forms of tubercle	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
37. Syphilis	4	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
47. Rheumatic fever	4	2	—	—	—	—	2	1	2	1	—	—	—	—	—	—	—
Other general diseases	7	4	—	—	3	1	1	1	1	1	2	1	—	—	1	—	—
60. Encephalitis	4	1	—	—	1	—	1	1	1	—	1	—	—	—	—	—	—
61c. Meningitis	6	3	—	—	1	—	3	1	—	—	1	2	1	—	—	—	—
63. Other diseases of the spinal cord	1	6	—	—	—	—	1	—	1	1	1	—	2	—	—	—	—
64. Cerebral hemorrhage, apoplexy	32	51	—	—	1	2	11	10	12	25	5	12	3	2	—	—	—
67. General paralysis of the insane	5	3	—	—	1	—	—	—	1	1	1	1	2	1	—	—	—
General paralysis (not of insane)	4	7	—	—	—	—	—	—	3	1	—	5	1	—	—	—	—
69. Epilepsy	20	7	—	—	3	3	5	2	6	—	5	2	1	—	—	—	—
73b. Neuritis	24	59	—	—	3	5	5	19	9	23	5	10	2	2	—	—	—
Other nervous diseases	6	9	—	—	—	—	1	2	4	4	1	1	—	1	—	—	—
79a. Valvular disease of the heart	14	3	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—
79b. Fatty degeneration of the heart	26	31	—	—	2	10	11	6	12	8	5	2	1	—	—	—	—
79c. Other organic disease of the heart	53	43	—	—	5	2	13	8	16	13	10	5	7	1	—	—	—
81b. Arterial sclerosis	6	1	—	—	—	—	—	—	3	1	—	—	—	—	—	—	—
Other diseases of circulatory system	6	6	—	—	1	—	2	1	2	3	1	2	—	—	—	—	—
89, 90. Bronchitis	17	12	—	—	—	1	3	1	4	4	9	4	1	2	—	—	—
92a. Lobar pneumonia	121	24	—	—	14	2	38	6	40	10	22	3	7	3	—	—	—
Other diseases of respiratory system	23	8	—	—	1	1	8	—	9	3	2	2	3	1	—	—	1
103a. Inflammation of stomach	22	9	—	—	1	1	6	3	9	2	4	1	2	1	—	—	1
103b. Other diseases of stomach	6	3	—	—	—	—	—	1	2	1	3	—	—	—	—	—	—
104, 105. Diarrhoea and enteritis	11	5	—	—	1	2	1	1	4	1	1	1	4	—	—	—	—
113. Cirrhosis of liver	145	135	—	—	1	3	8	31	44	48	40	37	25	22	14	4	3
Other diseases of digestive system	8	4	—	—	2	2	2	—	1	1	3	—	—	—	—	—	1
120. Bright's disease	43	35	—	—	4	3	10	7	18	17	6	7	4	1	1	—	—
128-133. Diseases of female genital organs	—	5	—	—	—	—	—	2	—	3	—	—	—	—	—	—	—
134-136. Pregnancy and childbirth	—	2	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—
142. Gangrene	2	1	—	—	—	—	—	—	1	1	—	—	—	1	—	—	—
145. Diseases of integumentary system	—	3	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
155-186. Violence	153	46	4	—	22	3	36	16	53	16	30	5	7	4	1	2	—
Total	804	543	6	1	73	48	198	144	272	193	175	102	72	45	8	10	—

The contents of the table are on the whole very much what might have been expected from the general medical experience of the connexion of intemperance with disease. The comparative infrequency of the mention of alcoholism upon certificates of death from phthisis may be noted. The frequency of such secondary mention in the case of deaths from disease in general was .25 per cent., but in that of deaths from phthisis only .07 per cent.

Poliomyelitis.—Deaths from poliomyelitis and polioencephalitis are included under title 63, "other diseases of the spinal cord," unless it is apparent that the brain alone is affected, when they are listed to No. 74 D. So much interest, however, attaches to this disease at the present time that it seems desirable to state its mortality separately.

Including the encephalic form the total number of deaths registered was 180, with sex- and age-distribution as follows:—

	All Ages.	0—	1—	2—	3—	4—	5—	10—	15—	20—	25—	35—	45—	55—	65—
Males	100	16	22	10	8	10	10	6	7	2	2	2	4	—	1
Females	80	12	14	6	4	5	14	9	2	3	7	1	2	1	—

The proportion of deaths occurring under five years of age was 59 per cent., and under 20 years 86 per cent.

Included in the above deaths are 9 from polioccephalitis (in no case distinguished as "superior" or "inferior") and four from polioccephalomyelitis, with sex- and age-distribution as follows:—

	All Ages.	0—	5—	10—
Polioccephalitis	Males	6	4	2
	Females	3	2	1
Polioccephalomyelitis	Males	2	2	—
	Females	2	2	—

91 and 92. **Pneumonia.**—The deaths assigned to pneumonia in its various forms numbered 37,348,—21,345 being deaths of males and 16,003 of females. Included in this total are 17,373 deaths from broncho-pneumonia, 7,943 from lobar pneumonia, and 12,032 from pneumonia of undefined type. These numbers show an increase upon those of 1911 under each of the defined headings, together with a decrease under the undefined heading which more than counterbalances them. Table 19 shows that from 1901, when the different forms were first distinguished, onwards, deaths returned as due to lobar pneumonia have been increasing, with decrease under pneumonia (undefined), and minor changes only in mortality attributed to broncho-pneumonia. In addition to these deaths, which are shown on page 204 as those in the case of which pneumonia was either the only cause returned or was selected as the primary cause where more than one was mentioned, pneumonia was mentioned as a contributory cause of 630 of the deaths returned under tuberculosis (page 603), of 110 of those under rickets (page 604), and of four of those under other forms of bone softening (page 605). Little importance can be attached to the number relating to tuberculosis, since in all probability the mention of pneumonia in these cases merely indicates, as a rule, the form assumed by the tuberculous infection and does not therefore imply the existence of a secondary cause of death; but the 110 deaths from rickets complicated by pneumonia (which was described as broncho-pneumonia in 89 cases, as lobar pneumonia in three, and as "pneumonia" not otherwise defined in 18 cases) require to be added to those listed to pneumonia in stating its total mortality. When a rickety child dies of broncho-pneumonia it is probably more or less a matter of chance whether rickets is mentioned on the certificate or not, but if it is the rules for selection classify the death to rickets (Manual of Causes of Death, page xxxiv.) and not to the immediately fatal disease. It is therefore of importance to have a record of the approximate annual number of deaths which the operation of the rule in question diverts from the pneumonia heading to that of rickets. Of course if the rule assigned such deaths to pneumonia, transfer would have to be made in the other direction in dealing with the mortality of rickets, since the probability in such cases is that the pneumonia is largely a consequence of the rickets, so that rickets may be said to have caused the death through the immediate agency of pneumonia. In all such cases double classification seems to be the only satisfactory solution of the difficulty.

The death-rate from pneumonia of all forms (as primary cause of death) amounted to 1,019 per million living. Including 231 deaths from hypostatic pneumonia, formerly classed to this head, the death-rate was 1,025 per million, the lowest recorded since 1889.

As standardizing for sex- and age-constitution causes no very material modification of this rate the following table of crude death-rates may be accepted as giving a fair indication of the distribution throughout the country of the total mortality from pneumonia. Apart from London, where it is fairly high, the mortality steadily decreases from north to south in all classes of area and in both sexes, the position of Wales being intermediate between the North and the Midlands. The range of mortality is extreme, being almost four times as great for males in the county boroughs of the North as for females in the rural districts of the South, and three times as great when males alone are compared. Even when comparison is restricted to the same class of area in each case the mortality of the North is in no instance very much less than twice that of the South. No doubt this depends to some extent upon industrial conditions, but these can scarcely explain the great difference between the North and the Midlands. Evidently pneumonia is to a large extent a preventable disease, and the North of England has still much to learn with regard to its prevention.

The table shows pneumonia to be largely a disease of town life, as in all parts of the country mortality increases with urbanization, though the county boroughs of the south suffer less than the rural districts of the north. Standardization to some

extent accentuates these differences, slightly increasing the urban and decreasing the rural mortality.

TABLE LXXXIII.—PNEUMONIA (ALL FORMS), 1912.—CRUDE DEATH-RATES PER MILLION POPULATION.

	North.	Midlands.	South.	Wales.	England and Wales.
London ...	—	—	1,456	—	1,456
County Boroughs ...	1,814	1,321	913	1,453	1,547
Other Urban Districts ...	1,323	936	727	1,372	1,075
Rural Districts ...	1,063	763	624	964	813
All areas ...	1,276	866	880	1,126	1,019

Mortality from pneumonia is definitely influenced by season, being highest in winter and lowest in summer. This is shown in the following table to apply to both forms of the disease, though the variation was greater in the case of broncho- than of lobar pneumonia.

TABLE LXXXIV.—ENGLAND AND WALES, 1911 and 1912.—MORTALITY FROM PNEUMONIA IN EACH QUARTER PER CENT. OF TOTAL ANNUAL MORTALITY.

	1911.				1912.			
	Broncho-Pneumonia.	Lobar Pneumonia.	Pneumonia not otherwise defined.	Pneumonia (all forms).	Broncho-Pneumonia.	Lobar Pneumonia.	Pneumonia not otherwise defined.	Pneumonia (all forms).
First Quarter ...	38	29	33	35	38	29	35	35
Second " ...	23	28	26	25	22	28	25	24
Third " ...	12	16	16	14	13	17	15	15
Fourth " ...	27	27	25	26	27	26	25	26
Year ...	100	100	100	100	100	100	100	100

The uniformity of seasonal distribution in the two years available for examination is very striking. In the first or winter quarter the mortality from broncho-pneumonia was almost three times as great as in the third or summer quarter, but in the case of lobar pneumonia the excess was only about 75 per cent. This difference in seasonal distribution, if it proves to be a fairly constant feature from year to year, will furnish an additional test of the probable composition of the undefined group of cases. Reasons were given in the Report for 1910 for believing that this contains more lobar than broncho-pneumonia, but in regard to seasonal distribution in 1911 and 1912, at all events, it conforms very closely indeed to the average for pneumonia in general, suggesting that it may be made up of the two forms in much the same proportion as these bear to each other amongst the defined returns. Fortunately the question is one of continuously decreasing importance, owing to the steady growth in precision of certification.

134-141. **The Puerperal State.**—The number of deaths assigned to pregnancy or childbirth was 3,473 (Table LXXXV.), corresponding to a rate of 3.98 per 1,000 births. It will be seen from Table 19 that this number is 174 in excess of that assignable to these causes of death under the classification in use up to 1910 (see Manual of Causes of Death, pages xxvi. and xxx.). Deducting these 174 deaths, the mortality amounted to 3.78 per

1,000 births, as against an average rate of 3.90 in the ten years immediately preceding. Inclusion of the 848 deaths in Table LXXXVI. raises the proportion to 4.95 deaths stated to have been caused by or associated with the puerperal state in its widest sense (*i.e.*, including pregnancy as well as childbirth) for every 1,000 births.

The mortality amongst women aged 15-45 years from all the causes included in Tables LXXXV. and LXXXVI. was 473 per million living, against 480 per million in 1911.

Table LXXXV. gives particulars of the deaths assigned to the puerperal state, and in the case of the headings "other accidents of pregnancy," "other accidents of childbirth," and "puerperal fever" amplifies the information on pages 212 and 213 by giving details of the causes comprised by those titles.

Table LXXXVI. shows the causes of deaths stated to have been complicated by the existence of the puerperal state. Heart disease was much the commonest of these, and after it pneumonia and tuberculosis.

TABLE LXXXV.—ENGLAND AND WALES, 1912.—DEATHS OF WOMEN CLASSED TO PREGNANCY AND CHILDBEARING.

Cause of Death.	All Ages.	Ages.						
		15—	20—	25—	30—	35—	40—	45 and up-wards.
134A. Abortion	119	1	10	27	22	44	13	2
B. Hæmorrhage of pregnancy	88	2	5	11	21	33	15	1
C. Uncontrollable vomiting	33	1	8	7	5	6	5	1
D. Ectopic gestation	73	—	7	15	25	18	7	1
E. Other accidents of pregnancy:—								
Hydatid mole	4	—	1	1	—	1	—	1
Vesicular degeneration of chorion ...	1	—	—	—	—	1	—	—
Hydramnios	2	—	—	—	—	2	—	—
Retroversion of gravid uterus	1	—	—	—	1	—	—	—
False conception	1	—	—	—	1	—	—	—
Pregnancy apart from above complications:—								
(a) With secondary causes as follows:—								
Valvular disease	1	—	—	—	—	1	—	—
Bronchitis	1	—	—	—	—	1	—	—
Asthma	1	—	—	—	1	—	—	—
Suppression of urine	1	—	—	—	—	1	—	—
Pyelitis	1	—	1	—	—	—	—	—
(b) Without stated secondary cause	2	—	—	—	1	—	—	1
135. Puerperal hæmorrhage	522	7	38	92	141	150	79	15
136. Other accidents of childbirth:—								
Contracted pelvis	26	2	4	2	5	8	4	1
Craniotomy	10	1	2	1	3	2	1	—
Cæsarean section	15	—	—	3	5	5	2	—
Perineorrhaphy	1	—	—	—	—	—	—	1
Version	5	—	—	—	2	2	1	—
Instrumental delivery	13	1	1	1	2	5	3	—
Rupture of perineum	3	—	—	3	—	—	—	—
Rupture of uterus	32	—	5	3	9	9	6	—
Rupture of vagina	2	—	1	—	—	1	—	—
Malpresentation	14	—	1	2	4	4	3	—
Hour glass contraction of uterus ...	1	—	—	—	1	—	—	—
Inversion of uterus	7	3	1	3	—	—	—	—
Retroversion of uterus	2	—	—	1	—	1	—	—
Inertia of uterus	4	—	1	—	2	1	—	—
Hydrocephalic fœtus	6	—	—	2	2	1	1	—
Difficult and prolonged labour ...	40	1	3	10	5	11	6	4
Childbirth apart from above complications:—								
(a) With secondary causes as follows:—								
Hæmatoma in pelvis	1	—	—	—	1	—	—	—
Anæmia	14	1	2	6	1	2	2	—
Alcoholism	1	—	—	—	—	1	—	—
Meningitis	7	—	2	4	—	1	—	—
Cerebral apoplexy	1	—	—	—	—	—	1	—
Cerebral effusion	1	—	1	—	—	—	—	—

TABLE LXXXV.—continued.

Cause of Death.	All Ages.	Ages.						
		15—	20—	25—	30—	35—	40—	45 and up-wards.
Childbirth apart from above complications— <i>continued.</i>								
(a) With secondary causes as follows— <i>continued.</i>								
Hemiplegia	1	—	—	—	—	1	—	—
Chorea	1	—	—	1	—	—	—	—
Acute endocarditis	2	—	—	2	—	—	—	—
Rupture of valve of heart	1	—	—	—	—	—	1	—
Dilatation of heart	8	—	—	2	1	2	2	1
Bronchiectasis	1	—	—	—	1	—	—	—
Bronchitis	14	—	3	4	2	4	1	—
Broncho-pneumonia	9	—	2	2	4	1	—	—
Pneumonia	38	—	6	8	6	13	4	1
Pleurisy	4	—	—	1	2	—	1	—
Congestion of lungs	3	—	1	1	—	—	1	—
Asthma	1	—	—	—	1	—	—	—
Gastritis	6	—	1	1	4	—	—	—
Dilatation of stomach	1	—	—	—	—	1	—	—
Diarrhœa and enteritis	6	—	3	1	1	1	—	—
Intestinal obstruction	4	—	—	—	1	2	—	1
Intestinal paralysis	2	—	—	—	1	1	—	—
Ischio-rectal abscess	1	—	—	1	—	—	—	—
Acute yellow atrophy of liver ...	2	—	—	1	1	—	—	—
Jaundice	2	—	—	1	1	—	—	—
Cholecystitis	1	—	—	1	—	—	—	—
Suppression of urine	1	—	1	—	—	—	—	—
Renal insufficiency	1	—	—	—	—	1	—	—
Acute cystitis	1	—	—	—	1	—	—	—
(b) Without stated secondary cause	61	1	4	14	14	17	10	1
137. Puerperal fever:—								
Puerperal septicæmia	922	25	169	247	230	167	78	6
Puerperal pyæmia	102	1	14	33	31	20	2	1
Puerperal fever (not otherwise described).	192	5	38	43	54	38	13	1
138A. Puerperal nephritis and uræmia ...	131	6	14	41	31	21	16	2
B. Puerperal albuminuria and Bright's disease.	41	1	3	12	16	6	3	—
C. Puerperal convulsions	457	48	97	106	92	76	36	2
139A. Puerperal phlegmasia alba dolens, and phlebitis.	64	1	9	10	21	15	7	1
B. Puerperal embolism and sudden death	298	10	29	69	61	90	35	4
140. Puerperal insanity	30	—	4	7	10	9	—	—
141. Puerperal diseases of the breast ...	7	—	3	1	1	1	—	—
Total	3,473	118	495	804	848	799	360	49

TABLE LXXXVI.—ENGLAND AND WALES, 1912.—DEATHS OF WOMEN NOT CLASSED TO PREGNANCY AND CHILDBEARING, BUT RETURNED AS ASSOCIATED THEREWITH.

Enteric fever	5	—	3	—	2	—	—	—
Small pox	1	—	1	—	—	—	—	—
Measles	6	—	—	2	1	3	—	—
Scarlet fever	8	1	3	2	—	1	1	—
Diphtheria	3	—	—	2	—	—	1	—
Influenza	33	2	4	12	4	9	2	—
Pulmonary tuberculosis	56	1	7	14	17	10	7	—
Phthisis	32	1	5	5	7	11	3	—
Acute phthisis	20	—	3	4	6	7	—	—
Acute miliary tuberculosis	1	—	—	—	1	—	—	—
Tuberculous meningitis	4	—	2	2	—	—	—	—
Tuberculosis of peritoneum and intestines ...	3	—	—	2	1	—	—	—
Other forms of tubercle	6	—	—	2	3	1	—	—
Rickets	1	—	—	1	—	—	—	—
Syphilis	2	2	—	—	—	—	—	—
Gonococcus infection	3	—	2	1	—	—	—	—

TABLE LXXXVI.—*continued.*

Cause of Death.	All Ages.	Ages.						
		15—	20—	25—	30—	35—	40—	45 and upwards.
Cancer	17	—	—	3	4	7	2	1
Rheumatic fever	10	—	1	2	—	4	3	—
Diabetes	1	—	—	1	—	—	—	—
Exophthalmic goitre	7	—	1	2	2	—	—	—
Addison's disease	1	—	—	1	—	—	—	—
Leucocythæmia	1	—	—	—	—	1	—	—
Anæmia	23	1	—	5	4	9	3	1
Purpura	1	—	—	—	1	—	—	—
Hæmophilia	1	—	—	1	—	—	—	—
Diseases of the spinal cord	3	—	1	—	1	—	1	—
Cerebral hæmorrhage, apoplexy	5	—	1	—	1	1	2	—
Hemiplegia	1	—	—	—	—	1	—	—
Epilepsy	9	1	1	2	1	4	—	—
Chorea	10	1	5	3	1	—	—	—
Neuritis	1	—	—	1	—	—	—	—
Disease of the ears	1	—	—	—	1	—	—	—
Pericarditis	2	—	—	—	1	1	—	—
Acute endocarditis	12	—	—	—	4	6	2	—
Valvular disease	94	3	10	12	29	27	13	—
Fatty degeneration of the heart	13	—	1	2	3	6	1	—
Other organic disease of the heart	79	3	8	14	12	22	18	2
Angina pectoris... ..	2	—	—	1	—	1	—	—
Embolism and thrombosis	4	—	1	1	—	2	—	—
Varicose veins	1	—	—	—	1	—	—	—
Bronchitis	36	—	4	8	7	11	6	—
Broncho-pneumonia	16	—	—	1	8	4	2	1
Lobar pneumonia	60	3	13	8	16	15	4	1
Pneumonia (type not stated)	58	1	2	12	22	14	6	1
Pleurisy	10	—	—	1	2	4	3	—
Asthma	6	—	1	2	—	1	2	—
Other respiratory diseases	6	—	—	—	2	2	1	1
Perforating ulcer of the stomach	16	1	5	1	1	6	2	—
Gastritis	8	—	2	3	1	1	1	—
Other diseases of the stomach	2	—	—	1	1	—	—	—
Diarrhoea and enteritis	11	—	1	3	4	2	1	—
Appendicitis	11	—	3	4	4	—	—	—
Hernia	4	—	—	—	—	2	2	—
Intestinal obstruction	8	—	3	1	2	1	1	—
Acute yellow atrophy of liver	5	—	—	3	—	—	2	—
Other diseases of the liver	4	—	—	1	2	—	1	—
Other diseases of the digestive system	2	—	1	1	—	—	—	—
Bright's disease... ..	68	—	3	12	13	26	11	3
Other diseases of the kidney	5	—	1	2	1	1	—	—
Urinary calculus	1	—	—	—	1	—	—	—
Uterine tumour (non-cancerous)	14	—	—	—	—	9	5	—
Ovarian cyst, tumour (non-cancerous)	2	—	—	1	—	1	—	—
Other diseases of the female genital organs	3	—	1	1	—	—	1	—
Violence	9	1	2	1	2	1	2	—
Total	848	22	102	167	196	238	112	11

Anæsthetics.—Until 1911 all deaths in certifying which any mention was made of an anæsthetic were assigned to the anæsthetic as the cause of death except in the case of cancer and strangulated hernia, deaths from which were in all cases classed to the disease. This practice had the disadvantage of understating to some extent both the mortality connected with the administration of anæsthetics and that from the various conditions, other than cancer and strangulated hernia, for which they are commonly administered. Moreover it seems illogical to class deaths primarily to anæsthetics, since the primary cause must always be some condition which has occasioned the administration of the anæsthetic. And it is often impossible to determine from the certificate whether a death which occurred under an anæsthetic should be regarded as in any way due to its administration and not rather perhaps to the severity of the operation or other cause apart from the anæsthetic.

For these reasons it was decided in 1911 not to classify deaths primarily to anæsthetics at all, but to publish returns, as a process of secondary classification, of all

deaths on the certificates relating to which any mention of the administration of an anæsthetic is made. These are classified in Table LXXXVII. according to sex and age and nature of anæsthetic, while the lists appended to the table show for each sex the disease or accident to which the death has been primarily classed and the age of the patient, but not the kind of anæsthetic. Causes of death in these lists are numbered in International List order. The bracketed figures following them denote the exact ages of the deceased.

TABLE LXXXVII.—ENGLAND AND WALES, 1912.—DEATHS UNDER OR CONNECTED WITH THE ADMINISTRATION OF VARIOUS ANÆSTHETICS.

Anæsthetic.	All Ages.	Age.																			
		0—	1—	2—	3—	4—	5—	10—	15—	20—	25—	30—	35—	40—	45—	50—	55—	65—			
Adrenalin and chloroform ... M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—		
Adrenalin chloride and cocaine. M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—		
A.C.E. Mixture ... M.	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—		
Alcohol and chloroform ... F.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Chloroform ... M.	69	2	3	3	1	1	10	8	3	2	5	—	6	4	5	5	5	6	—		
Chloroform and ether ... F.	48	1	4	1	1	1	4	3	—	3	9	1	7	2	6	4	1	—	—		
Chloroform and ether ... M.	15	2	1	—	—	—	3	1	—	—	—	—	2	2	—	1	—	2	1		
Codrenine ... F.	9	1	2	—	1	—	—	—	—	1	—	—	—	—	—	—	1	2	—		
Ether ... M.	12	1	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—		
Ether and nitrous oxide ... F.	10	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—		
Ethyl chloride ... M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Hedonal ... F.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Mannitol and novocaine ... F.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Nitrous oxide ... M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Scopolamine ... M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Stovaine ... M.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1		
Kind not stated ... M.	62	5	1	2	3	1	7	3	4	2	—	4	2	7	2	7	10	2	—		
Kind not stated ... F.	40	1	1	—	—	2	3	1	5	2	1	4	5	2	3	3	4	3	—		
Total... M.	167	10	5	6	4	3	20	14	7	4	5	10	11	13	8	16	20	11	—		
Total... F.	116	3	7	1	2	5	9	7	6	7	13	6	14	6	10	9	8	3	—		

CAUSES OF DEATHS UNDER OR FOLLOWING ANÆSTHETICS.

Males.

9. Diphtheria, tracheotomy (4, 13); 28. Tuberculous phthisis, removal of tear sac (19); 29. Acute general tuberculosis, operation for cause not stated (30); 33. Hip joint disease (2); 34. Tuberculosis—of tibia (14); of kidney (4, 31); of urinary tract (20); of glands of neck (5, 5, 10); 35. Disseminated tubercle (26); disseminated tubercle, removal of testicle (35); 36. Rickets (1); 39–45. Cancer—of tongue (57, 62); of tongue and neck glands (50, 57); of mouth (45, 54); of mouth and neck (54); of soft palate (38); of cheek (62); of gullet (54); of liver (60); of colon (63); of rectum (63); of intestines (undefined) (50, 56, 65); of testicle (52); 46. Tumour of neck (54); 75. Strabismus (8); shrunken eyeball (23); dermoid cyst of eye (13); removal of tear sac (40); 76. Disease of ear (2, 5, 7); 83. Varicose veins (21, 47); 84. enlarged glands of neck (30); 86. Adenoids (2, 5, 7, 11, 12); nasal polypus (38); obstruction in nose (17, 21); overgrowth of nasal tissues (68); deflected septum of nose (12); resection of nasal septum (25); 93. Empyema (2, 35); abscess of chest (3); 99. Dental operations (25, 38, 40, 53); 100. Enlarged tonsils (0, 4, 5, 6, 9, 10, 12, 15, 16, 36); 102. Gastric ulcer (31); 103. Dilatation of stomach (32); 108. Appendicitis (8, 9, 10, 12, 15, 32, 42, 59); 109. Hernia (0, 0, 1, 1, 1, 2, 28, 33, 41, 44, 44, 49, 52, 54, 57, 64, 66, 72, 73); rupture of intestine (55); intestinal obstruction (0, 3, 14, 40, 47, 57, 65, 68); intussusception of intestine (0, 0); 110. Tumour of rectum (66); perforation of duodenum (40); 114. Gallstones (33); 115. Removal of gall bladder (67); 117. Peritonitis (52); 123. Calculus (13, 56, 57); 124. Cystitis (46); 125. Perineal abscess (64); rupture of urethra (57);

126. Enlarged prostate (68); 127. Hydrocele (1); 142. Gangrene (62); 144. Cellulitis of leg (56); 145. Ingrowing toenail (16); 146. Frontal abscess (43); diseased bone (6, 36); 147. Stiff shoulder joint (48); 149. Torticollis (8); 150. Phimosi (0, 0, 2); circumcision (3); nœvus (5); cleft palate (0); removal of birth mark (0); undescended testicle (13); 155-186. Various forms of violence (3, 7, 31, 34, 35, 36, 38, 39, 40, 41, 42, 42, 48, 48, 52, 52, 52, 54, 63); 189. Operation, nature not stated (5, 6, 8, 17, 28, 53, 68).

Females.

9. Diphtheria, tracheotomy (6); 20. Pyæmia, splinter in finger (49); 28. Tuberculous empyema (27); tuberculous phthisis, operation for removal of tonsils (10); 31. Tuberculous peritonitis (3, 14); tuberculous kidney (48); tuberculous glands of neck (1, 3, 5, 7); 35. Disseminated tuberculosis, tuberculous glands (1); disseminated tuberculosis, abscess in pelvis (32); 39-45. Cancer—of tongue (56); of stomach (61); of liver (gallstones) (54); of rectum (73); of uterus (51); of uterus, obstruction, colotomy (67); of breast (46, 46, 53, 64); of kidney (34); of eye (26); of erector spinæ muscle (0); 46. Tumour—of neck (1); of mediastinum (8); of organ not stated (58); cyst on chest wall (39); 53. Hodgkin's disease, enlarged glands (38); 75. Corneal ulcer (39); 76. Mastoid disease (0); disease of ears (0); 79. Fatty heart, childbirth (35); 83. Hæmorrhoids (42); 84. Septic glands of neck (7); 86. Adenoids (6, 10, 12, 14, 22); removal of bone of nose (54); 88. Removal of thyroid gland (26); goitre (46); 92. Pneumonia, empyema (27, 29); 93. Empyema (1, 2, 4, 6, 42, 48); 99. Dental operations (15, 16, 20, 20, 25, 26); 100. Enlarged tonsils (18); Ludwig's angina (48); 104. Duodenal ulcer (45); 108. Appendicitis (4, 6, 16, 21, 28, 48); 109. Hernia (10, 46, 52, 62); intestinal obstruction (59, 63); 110. Mortified bowel (26); 114. Gallstones (36, 40); 118. Abdominal abscess (1); 120. Bright's disease, exploratory operation (10); 129. Myoma of uterus (43); fibromyoma of uterus (52); tumour of uterus (40); 130. Falling womb (54); 131. Cyst of ovary (27); 132. Abscess in Fallopian tube (35, 38); 133. Mammary abscess (31); 134. Abortion (30); incomplete abortion (35); 135. Puerperal hæmorrhage (31); retained placenta (35); 136. Contracted pelvis (23, 39); craniotomy (31); torn perineum (27); instrumental delivery (39); 137. Puerperal fever, endometritis (36); puerperal fever, pelvic abscess (24); 138. Puerperal convulsions, instrumental delivery (15); 142. Gangrene (61, 70); 144. Abscess in leg (4); 146. Diseased frontal bone (36); 150. Cleft palate (4); enlarged liver (0); malformation of bladder (1); 155-186. Various forms of violence (4, 24, 29, 44, 51); 189. Operation, nature not stated (6, 25, 39, 51).

Of the males whose deaths are referred to in Table LXXXVII., 17 per cent. were under 5 years of age and 41 per cent. under 20 years, the corresponding proportions for females being 16 and 34 per cent. Very few deaths of aged persons appear in the table. The nature of the anæsthetic was stated in only 64 per cent. of the cases, as against 78 per cent. in 1911. In 65 per cent. of the cases in which it was stated chloroform is recorded as the only anæsthetic administered, and in 17 per cent. as administered in combination with some other agent. Mention is made of anaesthetics other than alcohol, chloroform, ether and nitrous oxide in nine instances as against four only in 1911, so the use of the newer agents would seem to be increasing rapidly.

Operations for tubercle, cancer, the removal of tonsils and adenoids, the extraction of teeth, empyema, appendicitis, hernia, intestinal obstruction, and various forms of injury, appear to involve the greatest mortality under or related to anæsthetics. In some cases this is evidently due to the frequency with which the operation is performed and in others to its gravity or the severity of the condition requiring it.

Status Lymphaticus.—In addition to the 155 deaths primarily classified to this condition its presence was noted in the case of 29 deaths under anaesthetics, which were referred to the condition leading to the administration of the anæsthetic. The sex- and age-distribution of these was as follows:—

	—	0—	5—	10—	15—	20—	25—	35—
Males ...		4	6	2	3	—	1	2
Females ...		1	2	3	1	—	2	2

In 11 of the cases the nature of the anæsthetic was not stated; in 14 of the remainder it was chloroform only, in two chloroform and ether, in one ether and in one hedonal. The operations during which these deaths occurred seem for the most part not to have been of a dangerous nature.

189. Ill-defined Causes of Death.—The deaths allocated to No. 189 of the list of causes, with which this title is particularly associated, number 2,516. Addition of Nos. 187 and 188 however, which are included under the same group title in the International List, brings this number up to 2,868. This figure excludes from the group as given in the old list of causes of death (see Tables 19 and 20) the ill-defined diseases of infancy and old age, which now appear under titles 151 and 154, and together accounted for 41,719 deaths in 1912, as well as 455 deaths from other causes of less numerical importance; and includes 1,713 deaths, mainly from syncope and heart failure, not formerly classified as ill-defined.* When the appropriate additions and deductions have been made the number of ill-defined deaths in Table 19, 43,329, is arrived at. This number is the lowest of recent years. It forms 8.9 per cent. of the total deaths, as against 9.3 per cent. in 1911 and 9.5 per cent in 1901-1910.

The inquiries sent to medical practitioners asking for further information respecting deaths which had been indefinitely certified were fewer than in 1911, but, for the reasons given in that year's Report, more than in any previous year. As in 1911 they were addressed to coroners as well as to medical practitioners. Thanks to the courtesy of the coroners applied to, only 56 deaths appear in 1912 under "Accident (not otherwise described) without further qualification," and 11 under "Suicide (otherwise or not stated)," as against 320 and 122 respectively in 1910.

In order at once to facilitate inquiries and to diminish if possible their number in the future a list of indefinite forms of certificate, with indications of the further information desirable in each case, was distributed with the inquiries in 1911 and 1912, and is now bound with each book of death certificate forms issued. By its means the supplemental information desired in any given case is readily indicated, and it has been found moreover that the number of deaths certified in ways respecting which inquiry is at present made has fallen appreciably since the list came into use.

The total number of inquiries issued respecting deaths registered in 1912 was 9,912 and to these 8,305 replies were received, as against 12,563 inquiries and 10,718 replies in 1911, the subjects of inquiry in the two years remaining the same. In 1910 the number of inquiries was 6,130, to which 5,549 replies were received.

The principal subjects of inquiry, and the resultant classification of the deaths concerned, are indicated in Table LXXXVIII. In some cases the allocation of a death, after satisfactory information has been obtained by means of inquiry, is the same as that provisionally assigned to it on the original incomplete information. Instances of this are afforded by the 103 deaths from "tuberculosis" classed as the result of inquiry to pulmonary tuberculosis, and the 33 deaths from "rheumatism" classed to rheumatic fever. It must not therefore be assumed that all entries in the table represent changes in classification, but in all cases they represent improvement in classification, whether by increase of correctness, of definiteness, or of reliability of the various entries.

The replies so courteously and willingly furnished in the great majority of instances to these inquiries have an importance altogether beyond and outside their effects upon the tabulation of the particular deaths concerned, for they are capable of throwing much light upon the significance of a number of the less definite headings in the tables of past years as well as of those immediately affected. Thus, to take the first entry in Table LXXXVIII. "croup" has been very generally regarded in this and in other countries as a loose term which in most cases signifies diphtheria. This opinion however can no longer be held of croup as returned at the present day, whether it held good in former years or not, when it is seen that of the 109 returns regarding which replies were received in 1912 only 11 were in their authors' eyes significant of diphtheria. Croup, as returned at the present day, generally implies laryngitis or laryngismus stridulus, and not diphtheria at all. The matter is fortunately of little importance now, as the term is rapidly dying out, but its importance in regard to the past history of diphtheria is very great. "Peritonitis," again, is an item fortunately of little importance in the returns of 1912, as the mortality so ascribed amounted only to 13 deaths per million living, the deaths numbering 459 in all (Tables 19 and 20). Table LXXXVIII. shows that without the system of inquiry in such case this number would have been 249 greater

* See Manual of Causes of Death, page xxxi.

or 708, and throws much light upon the probable nature not only of the 459 fatal cases of peritonitis in 1912 but of the 2,575 deaths allocated to the heading so recently as 1893.

A number of similar instances might be quoted in which the issue of these inquiries renders it possible to ascertain with a certainty which could not otherwise be hoped for the meaning attached by the practitioners using them to various conveniently indefinite terms. These are questions in regard to which no assistance can be looked for from nomenclatures or text-books, for it is the function of these to discourage, not to define, the use of the terms in question. And even if the meaning which should attach to such terms could be laid down by authority, this would not necessarily supply the answer to the question which the tabulator must ask himself, viz.:—"What does this expression mean to the man who has used it?" This question can only be answered by the reply to an inquiry directed to the user himself.

Sometimes the significance of a term is so clearly established as the result of a year or two's inquiries that these need not be continued, but where, as is more frequently the case, an indefinite term is found to possess different meanings for different users, the inquiries have to be kept up. They form a most valuable means of increasing the accuracy of the returns of causes of death included in these Reports, and as the Registrar General is necessarily dependent in regard to them upon the goodwill of those to whom they are addressed it is fitting that this acknowledgment should be made of the services willingly rendered in replying to them.

TABLE LXXXVIII.—ENGLAND AND WALES, 1912.—REPLIES TO INQUIRIES RESPECTING INDEFINITELY CERTIFIED CAUSES OF DEATH.

Subject of Inquiry.	Replies received.	Replies amplifying previous information.	Deaths allocated as the result of inquiry to various important headings.
Croup	133	109	Diphtheria 11, Laryngismus stridulus 23, Laryngitis 66.
Membranous laryngitis	14	14	Diphtheria 12.
Pyæmia, septicæmia, &c.	334	187	Syphilis 11, Diseases of the teeth and gums 23, Puerperal fever 22, Carbuncle, Boil 10.
Tuberculosis	355	352	Pulmonary tuberculosis 103, Acute phthisis 67, Acute miliary tuberculosis 49, Tuberculosis of peritoneum, &c. 17, Disseminated tuberculosis 91, Other forms of tubercle 22.
Cancer (part or organ affected not stated).	1,060	940	Part or organ stated in 939 cases.
Tumour, growth, &c.	480	235	Cancer 199.
Rheumatism	83	78	Rheumatic fever 33, Chronic rheumatism 21.
Rheumatic arthritis	35	35	Osteo-arthritis 29.
Basal or basic meningitis	92	46	Tuberculous meningitis 32.
Cerebro-spinal meningitis	140	119	Tuberculous meningitis 13, Cerebro-spinal fever 95.
Paraplegia	230	164	Syphilis 15, Diseases of the spinal cord 75, Cerebral hæmorrhage, apoplexy 18, Arterial sclerosis 17.
General paralysis (outside asylums)	210	190	Cerebral hæmorrhage, apoplexy 11, General paralysis of the insane 144.
Paralysis	241	204	Diseases of the spinal cord 21, Cerebral hæmorrhage, apoplexy 81, Hemiplegia 15, Arterial sclerosis 18, Cerebral embolism 19.
Cerebral tumour	646	247	Tuberculous meningitis 37, Syphilis 47, Cancer 76.
Fibroid phthisis	198	125	Pulmonary tuberculosis 120.
Hæmoptysis	140	95	Pulmonary tuberculosis 47, Phthisis 13.
Stomatitis	90	70	Thrush, aphthous stomatitis 57.
Stricture of œsophagus	86	64	Cancer 53.
Hæmatemesis	98	73	Cancer 15, Gastric ulcer 28, Cirrhosis of liver 10.
Pyloric obstruction, stenosis, &c.	74	54	Cancer 36, Gastric ulcer 10.
Jaundice	86	52	Cancer 32, Cirrhosis of liver 8.
Peritonitis	437	249	Tuberculosis of peritoneum, &c. 31, Cancer 11, Gastric ulcer 20, Duodenal ulcer 12, Appendicitis 67, Hernia, intestinal obstruction 21, Diseases of female genital organs 11, Puerperal fever 18.
Pemphigus	123	77	Syphilis 74.
Hydrocephalus	159	140	Tuberculous meningitis 41, Congenital hydrocephalus 69.
Violence	278	264	Precise form of suicide 33, Injury by fall 68, Injury in mines and quarries 18, Injury by machines 10, Injury by crushing 70.
Ascites, dropsy	83	76	Diseases of the heart 43, Cirrhosis of liver 13.
Syncope, heart failure (ages 1-70)	566	430	Influenza 12, Diseases of the heart 246, Arterial sclerosis 25, Bronchitis 18, Old age 13.
Operation	198	180	Cancer 23, Diseases of the nasal fossæ 10, Hernia, intestinal obstruction 15, Diseases of the prostate 11, Uterine tumour 9.
Other indefinite forms of certificate	1,636	1,195	—
All Subjects	8,305	6,064	—

DEATHS IN INSTITUTIONS FOR THE SICK OR INFIRM.

The numbers of deaths from different causes occurring in various classes of institutions are shown on pages 310-323 with distinction of the four classes of areas dealt with in this Report, and of sex, but not of age. The additional distinction of age is added on pages 324-328 for that portion of the list of causes selected for specially detailed analysis in the present Report.

It will be possible here to comment only on the figures relating to deaths from all causes, which can to some extent be compared with those tabulated in former years. These are shown on page 323 where it may be seen that 55,232 deaths occurred in Poor Law Institutions (workhouses and workhouse infirmaries), 38,073 in hospitals, 11,068 in lunatic asylums, and 661 in nursing homes. Excluding the latter, which were not tabulated until 1911, these numbers yield the proportions in the following table, which is continued from previous Reports:—

TABLE LXXXIX.

Public Institutions.	Percentage of Total Deaths.		Rate per 1,000 living.	
	Ten years, 1902-11.	1912.	Ten years, 1902-11.	1912.
Workhouses and Workhouse Infirmaries.	9.78	11.34	1.48	1.51
Hospitals	6.67	7.82	1.01	1.04
Lunatic and Idiot Asylums	1.94	2.27	0.29	0.30
Total	18.39	21.43	2.78	2.85

Table XC. shows that the proportion of institutional deaths is much higher in the male sex and varies enormously in different areas. It is highest in London and decreases regularly in both sexes to a minimum in the rural districts, the most highly organised communities naturally showing the largest proportions of institutional deaths; and in this connexion it may be noted that the gap between London and the county boroughs is by far the greatest in the series.

TABLE XC.—DEATHS OCCURRING IN VARIOUS CLASSES OF INSTITUTIONS PER CENT. OF TOTAL DEATHS, 1912.

Place of Death.	Males.					Females.				
	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.	England and Wales.
Poor Law Institutions	25.8	15.4	9.1	7.1	13.0	21.6	11.2	6.3	4.5	9.6
Hospitals	17.2	9.3	7.2	5.2	8.8	14.0	7.4	5.2	3.7	6.8
Lunatic and Idiot Asylums	3.8	2.0	2.1	2.4	2.3	4.3	1.7	1.8	2.3	2.2
Nursing Homes	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1
Institutions in general	46.9	26.8	18.5	14.8	24.2	40.1	20.5	13.4	10.6	18.7
Elsewhere than Institutions	53.1	73.2	81.5	85.2	75.8	59.9	79.5	86.6	89.4	81.3

It is a remarkable fact that more than a quarter of the deaths of London males occurred in poor law institutions, and over one-fifth of those of London females. Probably this implies that the London poor are much better cared for in illness on the whole than their fellows elsewhere, and may help to explain why London mortality from many causes of death is lower than that of the county boroughs.

UNITED KINGDOM.

Population.

The first complete census of the United Kingdom was taken in 1821, when the population numbered 20,893,584 persons; during the 90 years, 1821-1911, the population more than doubled itself, the numbers enumerated at the beginning of April, 1911, amounting to 45,221,615 persons.

The method adopted, in the absence of precise information as to migration, for estimating the population of England and Wales, has been described on page ix. The populations of the several divisions of the United Kingdom are provisionally estimated as follows:—

TABLE XCI.—POPULATION ESTIMATED to the MIDDLE of the YEAR 1912.

	Persons.	Males.	Females.
England and Wales	36,539,636	17,672,985	18,866,651
Scotland	4,738,300	2,297,400	2,440,900
Ireland	4,384,710	2,189,429	2,195,281
United Kingdom	45,662,646	22,159,814	23,502,832

Marriages.

The marriages in the United Kingdom during the year 1912 numbered 339,627, corresponding to a rate of 14·8 persons married per 1,000 of the population at all ages.

This rate was 0·2 per 1,000 above the corresponding rate in 1911 and 0·1 per 1,000 above the average rate in the ten years, 1902-1911.

TABLE XCII.

	Marriages, 1912.	Persons Married to 1,000 Living.	
		Ten Years, 1902-1911.	1912.
England and Wales	283,834	15·4	15·5
Scotland	32,510	13·8	13·7
Ireland	23,283	10·4	10·6
United Kingdom	339,627	14·7	14·8

Births.

The births registered in the United Kingdom in the year 1912 numbered 1,096,488 and were in the proportion of 23·9 per 1,000 of the population at all ages.

This rate was 0·5 per 1,000 below the corresponding rate in 1911; compared with the average in the ten years 1902-1911 the birth-rate in 1912 showed a decrease of 2·7 per 1,000.

TABLE XCIII.

	Births, 1912.	Births to 1,000 Living.	
		Ten Years, 1902-1911.	1912.
England and Wales	872,737	26·8	23·8
Scotland	122,716	28·0	25·9
Ireland	101,035	23·3	23·0
United Kingdom	1,096,488	26·6	23·9

Deaths.

The deaths registered in the United Kingdom in the year 1912 numbered 631,463 and were in the proportion of 13·8 per 1,000 of the population at all ages.

This rate was 1·0 per 1,000 below the corresponding rate in 1911; compared with the average in the ten years 1902-1911 the death-rate in 1912 showed a decrease of 1·7 per 1,000.

TABLE XCIV.

	Deaths, 1912.	Deaths to 1,000 living.	
		Ten years, 1902-1911.	1912.
England and Wales	486,939	15·2	13·3
Scotland	72,337	16·3	15·3
Ireland	72,187	17·3	16·5
United Kingdom	631,463	15·5	13·8

Infant Mortality.

The following Table shows the proportion of deaths of infants under one year of age to 1,000 births in each division of the United Kingdom. At the time of going to press the figures for Scotland relating to the year 1912 were not available.

TABLE XCV.

	Deaths under 1 year to 1,000 Births.	
	1902-1911.	1912.
England and Wales	125	95
Scotland	114	112*
Ireland	95	86
United Kingdom	121	—

In Table 42, pages 100, 102, 106 and 107, the population, marriages, births, deaths and principal causes of death are given for a series of years for the United Kingdom and for each of its three divisions.

MORTALITY IN THE ARMY.

The average regimental strength of the British Army at home and abroad during the year 1912 was 254,001, and the deaths during the year numbered 773, giving a death-rate of 3·0 per 1,000, as compared with 3·9, 3·4, and 3·4 per 1,000, respectively, in the three preceding years. The mortality in the Army abroad was 3·8 per 1,000, against 4·8, 4·3, and 4·4 in the three preceding years; whilst the mortality in the Army at home was 2·3 per 1,000, against 3·1, 2·5, and 2·5 (Table 34).

MORTALITY IN THE NAVY.

The average strength of the service afloat during the year 1912 was 119,540, and the deaths during the year numbered 395, being in the proportion of 3·30 per 1,000 of the strength, against an average of 3·31 per 1,000 in the six years immediately preceding. Of the 395 deaths in 1912, 244 were caused by disease and 151 by violence; the death-rate from disease was therefore 2·04 per 1,000, and that from violence 1·26 per 1,000. Of the 151 deaths by violence, 79 were due to drowning, and 4 to heatstroke, while 21 were cases of suicide.

* This proportion relates to the year 1911.

BIRTHS AND DEATHS AT SEA.

Marine Register Book.—In accordance with the Births and Deaths Registration Act of 1874 and the Merchant Shipping Act of 1894, Commanding Officers of ships trading to or from British ports are required, under penalty, to transmit returns of all births and deaths occurring on board their ships to the Registrar-General of Shipping and Seamen, who furnishes certified copies of such returns to the Registrars-General of Births and Deaths for England, Scotland, and Ireland. Similar returns are furnished to the Registrars-General of Births and Deaths by officers in charge of His Majesty's ships. These returns of births and deaths at sea constitute the "Marine Register Book." During the year 1912, this register was increased by the addition of 233 entries of birth and 2,903 entries of death.

Mercantile Marine.—A return received from the Marine Department of the Board of Trade shows the number of masters and seamen employed in sea-going vessels (excluding fishing vessels and yachts) registered in the United Kingdom and the Isle of Man under the Merchant Shipping Act in the years 1892–1912, and the number of deaths reported to the Board as occurring amongst this population. In the year 1911 the number employed was 247,046, of whom 15,086 were employed in sailing vessels, being 4,278 fewer than in the preceding year, and 231,960 in steam vessels, being 8,537 more than in the preceding year.

The reported deaths from all causes in sailing or steam vessels during the year ended 30th June 1912, numbered 3,124,* of which 1,163 resulted from disease, suicide, &c., 1423* from wreck or casualty to ship, and 538 from accident other than wreck or casualty to ship, showing a death-rate from all causes of 12·6 per 1,000 of the strength; this rate was 3·5 per 1,000 above the mean rate in the previous five years. (Table 36.)

PROGRESS OF REGISTRATION.

The names in the alphabetical indexes of births, deaths, and marriages recorded in the national registers of England and Wales were increased during the year 1912 by 1,927,344, this addition raising the total of names in the indexes, which at the end of 1912 embraced a period of 75½ years, to 124,497,433.

The following statements as to the number of prosecutions for offences against the Registration Acts and of searches in the registers have been prepared by the Secretary:—

OFFENCES AGAINST THE REGISTRATION ACTS.

In 1912, 17 persons, on prosecution by order of the Registrar-General, were convicted of different offences against the Registration Acts. The offences for which convictions were obtained were as under:—

For giving a false age when registering the death of an old-age pensioner	7
For otherwise giving false information to the registrar when registering a birth or death	1
For falsifying certificate of birth or death and using same as true ...	9

In addition to the above prosecutions initiated by the Registrar General proceedings were taken by the Public Prosecutor in several cases of false notice and declaration for marriage.

SEARCHES AND CERTIFICATES.

Besides the certified copies of the registered births, deaths, and marriages kept in England and Wales pursuant to the Registration Acts, a large number of other registers and records are deposited in this Office under statute or other arrangement. A list of these various registers and records will be found on pages xxix.–xxxii. of the Annual Report for 1895. Searches may be made in any of these registers, and certificates obtained on payment of the prescribed fees.

During the 52 weeks ended 28th December, 1912, the total number of searches was 80,601, and of certificates issued 61,143. The total amount received in fees was 11,752l. 6s.

* Of these deaths 673 were due to the loss of the s.s. "Titanic."

TABLE XCVI.

Years.	Total Searches.	Certificates Issued.	Amount Received.
1866 (52 weeks)	12,135	10,017	£ s. d. 1,860 15 6
1875 (52 weeks)	26,356	20,282	3,879 15 6
1885 (52 weeks)	36,450	27,682	5,317 13 6
1895 (52 weeks)	53,289	35,727	7,200 12 6
1896 (53 weeks)	57,444	37,435	7,600 0 6
1897 (52 weeks)	58,664	37,485	7,686 8 6
1898 (52 weeks)	63,825	41,143	8,450 19 6
1899 (52 weeks)	57,670	44,793	8,551 19 6
1900 (52 weeks)	57,895	45,479	8,658 9 6
1901 (52 weeks)	58,445	45,254	8,645 10 0
1902 (53 weeks)	61,437	48,262	9,177 15 0
1903 (52 weeks)	63,519	49,469	9,437 9 6
1904 (52 weeks)	62,270	48,658	9,274 12 0
1905 (52 weeks)	65,142	50,310	9,611 9 0
1906 (52 weeks)	64,340	49,429	9,458 6 0
1907 (52 weeks)	69,249	53,058	10,194 9 0
1908 (53 weeks)	72,370	54,870	10,550 8 0
1909 (52 weeks)	73,543	54,674	10,568 8 0
1910 (52 weeks)	75,369	57,019	10,939 5 6
1911 (52 weeks)	75,005	56,347	10,875 6 0
1912 (52 weeks)	80,601	61,143	11,752 6 0

Table XCVI. affords an indication of the extent to which the copies of the records kept in this Office have been utilised by the public for legal evidence of births, deaths, and marriages since 1866.

In addition to the above, 69,151 searches were made during 1912 free of charge for the purpose of verifying the ages of persons claiming old age pensions.

T. H. C. STEVENSON.

METEOROLOGY OF THE YEAR 1912.

REMARKS ON THE CONSPICUOUS METEOROLOGICAL OCCURRENCES IN THE BRITISH ISLES
IN 1912.

(Prepared in the Meteorological Office under the direction of
W. N. SHAW, Esq., LL.D., Sc.D., F.R.S.)

GENERAL CHARACTER OF THE YEAR.

Cold in summer ; otherwise mild ; irregularly rainy ; sunshine scanty and feeble.

The following are the outstanding features of the meteorology of the year 1912 :—

1. *Gales.*—There were many, and sometimes very severe and destructive, gales in the course of the year, but as a general rule they were of a local character, their influence being felt within narrow limits. Notwithstanding this, it is interesting to note that the pressure gradients across the entire country were frequently very steep. The weather during the greater part of the month of January was of a very unsettled type, mainly under the influence of large and deep depressions out on the Atlantic, but the only gales of any considerable extent occurred on the 8th–9th, and 15th–18th, on most of the western and north-eastern coasts, and from a general South-Easterly direction. Both of them were of a very severe character, at least a strong gale (force 9) being felt at a large number of places. In the former a whole gale (force 10) blew at Cape Wrath, Donaghadee, Rathlin Island and Rathlin O'Birne, while in the latter this strength was attained at the Outer Farne, Sule Skerry, Wick, Tarbet Ness, Cape Wrath, Donaghadee, Malin Head, Loop Head and Tearaght, and a storm (force 11) at the Bell Rock and Pentland Skerries. The violence of this storm on the north-eastern coasts, and out on the North Sea was associated with great destruction of life and property, more than 70 lives being lost in the neighbourhood of Aberdeen. Towards the close of February the conditions became very unsettled, under the influence of a large disturbance on the neighbouring parts of the Atlantic, and on the 28th and 29th there was a strong Southerly or South-Westerly gale on the western coasts and in the Western Channels. Other disturbances followed, and March opened with a severe South-Westerly gale on the Bristol Channel, attaining storm force at Lundy. A brief lull on the 3rd preceded the arrival of a deep cyclonic system which moved on an almost due easterly course across Ireland and England on the 4th and 5th. This was accompanied by a violent South-Westerly to Westerly gale over the southern half of the Kingdom, the force of a strong or whole gale being registered from the south of Ireland to the Dutch coast, storm force at Portland Bill, and a hurricane (force 12) at Lundy. The gale was marked by the passage of a well-defined and severe line squall, which traversed the region between Scilly and the Norfolk coast in 5½ hours. It was attended by hail and thunderstorms, snow in places, and sharp fluctuations of temperature. Another deep depression followed much the same path on the 21st, occasioning a strong Easterly gale off the Yorkshire coast and on the Irish Sea, and a strong Westerly to South-Westerly gale further south, a whole gale at Lundy, locally on the English Channel and on the Downs. At the close of the month and on April 1st a strong North-Easterly to Northerly gale was felt in many parts of Scotland, and also on the Bristol Channel, a whole gale in Shetland. The centre of a deep cyclonic system of increasing intensity moved across the extreme north of Scotland on the 8th, resulting in severe Westerly to Northerly gales over the northern half of the kingdom, the force of a whole gale being reported at numerous points, storm force at the Farne islands.

An interval of summer quietness now set in, only a few sporadic instances of gale force occurring during May, June and July. Through the month of August the atmospheric situation was of an exceptionally unsettled type, with an almost unbroken succession of wet weather disturbances, but there were few gales of note. Between the 4th and 6th a strong gale blew here and there at places as far apart as Shetland and the Channel Islands, Easterly in the north, and Westerly in the south, a whole gale at Scilly. On the 26th a very small cyclone which appeared over the Thames Estuary raised quite a tempest locally, a strong gale at Yarmouth, and a whole gale at the Kentish Knock and the Outer Gabbard, and a rainstorm of unprecedented intensity over the eastern counties.

A gale from various quarters on September 3rd and 4th affected the more northern districts, a strong gale locally in the north-east and west of Scotland, a whole gale at Cape Wrath. In October the conditions fell into a disturbed state on the 20th, and during the remainder of the month there were five important gales—on the 20th and 21st a Westerly to Northerly gale round the southern half of Ireland and on the Western Channels, a whole gale at Rockabill, a storm at the Codling light vessel ; on the 22nd a strong gale from between North-West and North-East on the Western Channels, a whole gale at Cald, Rathlin O'Birne and Malin Head ; on the 26th and 27th a strong gale round Scotland and on the western coasts, a whole gale at Lerwick and the Mull of Galloway, Easterly in Shetland, South-Westerly elsewhere ; on the 28th and 29th a strong to whole Westerly to South-Westerly gale on the Bristol Channel and the Western half of the English Channel ; and on the 30th and 31st a similar South-Westerly to North-Westerly gale on the south and east coasts of England. Between November 10th and 12th nearly all coasts were visited by a severe Westerly to Northerly gale, a whole gale at numerous stations, and storm force at the Codling Bank ; and on the 26th and 27th there was an almost general gale from South-West veering to North-West and North, a strong or whole gale in most places, a storm at Bell Rock, Sule Skerry, Rona, Rathlin Island, Malin Head, and the Varne. From December 9th to 15th strong to whole gales from between South and West occurred on many coasts, a storm at Rona. The 24th witnessed the most general and the severest gale of the year, there being numbers of reports of a whole gale, a storm at the Codling Bank, a hurricane at Inchkeith and the Bahama Bank, resulting in many casualties ashore and afloat. On the 26th the southern coasts, from the Shannon to the Thames, were affected by another heavy gale from the same quarter, storm force being registered at Scilly, the Casquets, Portland Bill and Dungeness.

Anemometrical records disclosed the following instances of mean hourly velocities of 60 or more miles of wind :—March 4th, Scilly, 63, Pendennis, 64 ; November 26th, Pendennis, 66 ; 27th, Deernees, 60 ; December 24th, Quilty, 62 ; and 26th, Scilly, 65, Pendennis, 70. In gusts the highest velocities attained were above 80 miles per hour in several instances, 98 miles at Pendennis on March 4th, 85 at Rosyth on November 26th, 88 at Quilty on December 24th, and at Scilly on the 26th, and, for the second time, 98 at Pendennis on the 26th. (For more detailed records see Appendix III of the Weekly Weather Report).

2. *Rainfall.*—The aggregate precipitation for the year was less than the normal at a few stations in the eastern parts of Britain and of Ireland, otherwise an excess was general, and in many localities it was considerable. Roche's Point returned 90 per cent. of the average, Cawdor 92, Marchmont 93, and Aberdeen and Phoenix Park, Dublin, 95, whereas numerous stations exceeded 125 per cent., Harrogate 142, Coventry 144, Woolacombe 145, Stroud 147, Spurn Head 148, and Salisbury 149 per cent. A number of stations, at low as well as at high levels, exceeded their average amounts by more than 10 in., Stroud by 14 in., Poltalloch and Woolacombe by 14½ in., Arlington by 15½ in., and Salisbury by 15¾ in. The smallest totals were 19.2 in. at Stifford, 20.2 in. at Shoeburyness, 20.6 in. at Southend, 22.4 in. at Clacton, 23.6 in. at Felixstowe, and 23.8 in. at Chelmsford, all on the northern side of the Thames Estuary. The largest records were 112.5 in. at Princetown (Dartmoor), and 142.9 in. at Seathwaite, while of 14 stations distributed over the slopes of Snowden, at altitudes ranging between 310 feet and 2,500 feet above sea level, ten returned more than 165 in., and one, Lluchfa 246.7 in. The frequency of days with rain was generally greater than usual, 283 at Roche's Point, 281 at Baltasound, 276 at Foynes, 270 at Bellingham and Valencia, 268 at Stornoway, 263 at Darwen, and 261 at Killarney ; while at the other extreme there were 170 days at Clacton and Dunrobin, 168 at Shoeburyness and South Kensington, 159 at Kingstown, and 139 at Tottenham. Falls of an inch or more in a day were very numerous in the course of the year. In Snowdonia falls of 2.5 in. or more were frequent, on June 17th, 5.3 in., and on August 23rd and October 26th, 4.2 in. Elsewhere, on March 12th, Seathwaite had 2.6 in. ; April 4th, Ardnadam, 2.6 in., Glencarron, 2.7 in., and Cruachan, 4.3 in., and on the 7th, 2.6 in. at Glencarron (where the total for 5 days was 8.6 in.), June 17th, Machynlleth, 2.5 in. ; August 5th, Greenock, 2.6 in. in 5½ hours, causing enormous destruction through flooding ; 17th, Princetown, 2.8 in., and on the 23rd, 2.5 in. Then came the greatest sea-level rainstorm on record in this country, that which flooded the Eastern Counties of England on August 26th. Within the period of the civil day, in nearly all cases in considerably less than 24 hours, the precipitation exceeded 4 in. over a wide area, the largest records being concentrated over and around the city of Norwich. A land area of 500 square miles received more than 4 in., 280 square miles more than 6 in., and 170 square miles more than 7 in. At Brundell the fall amounted to 8.1 in. (See the *Quarterly Journal* of the Royal Meteorological Society, Vol. XXXIX., pp. 1–28, for an account of the rainstorm, with

returns from 262 stations). A very heavy rainfall occurred over the north-western district on September 3rd, ranging up to 2.5 in. at Cruachan, and 2.8 in. at Ardnadam and Ford (Argyll). An equally severe downpour visited Southern England at the close of the month, 2.7 in. falling at Grayshott and Midhurst on the 29th. On October 13th Cruachan received another 2.5 in., and on the 27th there was a deluge about Dartmoor, 2.5 in. at Ashburton, 2.8 in. at Sheepstor, 3.1 in. at Redstone, 3.2 in. at Two Bridges, and 3.6 in. at Princetown. There was a fall of 5.7 in. at Seathwaite, on December 13th, and 2.5 in. at Fort William on the 19th. Some of the heavy falls in short periods noted by the observers were 0.9 in. in 20 minutes at Lincoln, and 0.71 in. in 17 minutes at Claypole on June 19th; 0.44 in. in less than a quarter of an hour at Great Billing on July 12th; 0.60 in. in half an hour at Oundle on the 23rd; 0.20 in. in 10 minutes at Meltham, and 0.50 in. in 12 minutes at Raunds on the 26th; 0.66 in. in 20 minutes at Guernsey on August 19th, and 0.4 in. in about 10 minutes at Bournemouth on the 20th; and 0.20 in. in eight minutes at New Malden on November 26th.

3. *Snowstorms*.—Though there were many records of snowfalls, there were no great snowstorms. Usually the depths noted were less than 6 in., but on January 8th Crieff had 10 in., on the 17th Wellington 10 in., and Malvern $11\frac{1}{2}$ in., and on the 18th Buxton 12 in. (6 feet in drifts), and Edgbaston $12\frac{1}{2}$ in. During the first six days of February Aberdeen totalled 29 in. Snow fell on the Snowden hills near Llanberis on June 4th, 8th, 9th, and 10th; on the 9th there was a very destructive hail and ice storm at Collooney, Sligo; and at Wellington there was "a very heavy snow and hail storm," doing immense damage to crops, on the 10th. A fall of 7 in. of snow at Rothesay on November 30th appears to have been the heaviest in the closing months.

4. *Thunderstorms*.—There were very few thunderstorms during January and February, those noted being of a local and unimportant character. On March 4th a storm was general over the Southern half of England and Wales, severe in places, with very heavy rain and hail, and locally some snow, several casualties being reported. This storm was associated with the severe line squall already referred to. Over the same region there was an equally extensive storm on the 22nd, with rain, hail or snow, but the precipitation was not nearly so heavy as in the previous case. The northern parts of England and Ireland and Western Scotland were visited on the 29th. June was a month of frequent and sometimes severe thunderstorms, the most extensive being on the 1st, 8th–13th, 16th, 19th, 22nd–25th, and 28th–30th, very violent and destructive in various parts of Ireland on the 8th, 9th, and 10th. At Lincoln, on the 19th, the storm was the most violent known for years. The storms of July were neither so numerous nor so widespread, and few of them were attended by heavy rains. The principal ones occurred on the 1st, 12th, 13th, and 23rd–29th. That of the 13th was exceedingly severe locally, occasioning some damage and loss of one life. August was affected to about the same extent, storms covering wide areas on the 4th, 6th–10th, and 18th–20th. There were very few instances of heavy rains in these thunderstorms—apparently there was no electrical disturbance within the area of the tremendous rainstorm over the Eastern Counties on the 26th. September was remarkable for the almost entire absence of storms. Geldeston reported a thunderstorm on the 6th, and Portsmouth on the 30th, otherwise there were only occasional references to thunder or to lightning in isolated situations. On October 20th and 21st, and 28th to 30th thunderstorms occurred in many parts of England and Ireland. The remaining months were comparatively free, most of the storms noted being in Ireland and Scotland, but the severe gale of December 26th, was accompanied by a sharp thunder and hail storm over the south-west quarter of England, mainly in the counties of Cornwall, Devon and Dorset.

5. *Dry Periods*.—Though the year as a whole was wet there were some spells of rainless weather. During the second half of January and the opening days of February a considerable number of places had from 10 to 14 consecutive days without rain, Birr Castle and Dumfries 15, Blacksod 16, and Donaghadee 19 days. In many localities the month of April was very dry. At Watlington the drought lasted 32 days, to May 2nd, at Wisley 33 days, to May 3rd. The first three weeks of July had very slight showers occasionally, many stations having a succession of days without a shower, Creech Grange (Dorset) returning a drought of 16 days. Following the great rainstorms of August, there was a well-marked drought of 20 days or more in September, 26 days at Torquay, Feignmouth, and Wisley, and 27 at Portsmouth, Totland Bay, Bucklebury, and Newcastle (Wicklow). Over a wide region in Southern England the first half of October was rainless. At Broadford, County Clare, a partial drought of 36 days ended on October 10th, only $\frac{1}{4}$ in. of rain being received in the five weeks. It was the longest dry spell at that station since the summer of 1896, when less than $\frac{1}{2}$ in. fell in 46 days.

6. *Temperature*.—A characteristic feature of the year was the small range of temperature between the summer and winter seasons, the conditions over the country as a whole approaching in this respect very closely to the normal conditions at such places as Valencia or the Shetlands. There were a few afternoon maxima of 80° and upwards on May 11th, some stations in East Anglia touching 82°, and Greenwich 83°. June 19th and 22nd yielded similar records, Greenwich 84° on the former, and Isleworth 85° on the latter date. At nearly every station in the kingdom the warmest days of the year were July 12th to 15th, when there were many maxima of 85° and above, 89° at Salisbury and Northwich, 90° at Portsmouth and Greenwich, and 91° at Camden Square (London) and Tottenham. August and September were exceptionally free from high maxima, the two months yielding between them only a few instances of values between 70° and 73°, or from 20° to 27° lower than those of the same months in the previous year. Some places in the North of Ireland and of Scotland remained below 70° throughout the year, Wick not passing 64°, Deerness 63°, Lerwick 62°, and Baltasound 61°. Days on which the thermometer registered maxima below the freezing point were uncommonly rare. In the burst of sharp wintry weather from January 27th to February 5th there were a number of afternoon readings below 30°, as low as 21° at Braemar, Thorntonhall, and West Linton. During a similar cold touch at the end of November and the beginning of December there were equally low maxima, as low as 20° at Kilmarnock. Very low night minima were seldom registered. On January 8th and 9th there were some records below 20°, 14° at West Linton, and 13° at Balmoral. The frost which set in about the 27th developed into the most general (not a single station escaped it) and the longest which the country had experienced since the early part of 1895, lasting about ten days, and attaining its greatest intensity on the last day, February 5th, when the lowest temperatures of the year were registered at all but a few stations, the lowest being –1° at Gordon Castle, –2° at Balmoral, –4° at Braemar and Garforth, and (on the 4th) –5° at West Linton. The only frost of note in the closing months occurred between November 28th and December 2nd, when there were a number of minima below 10°, Ardross Castle touching 4°, Scaleby 3°, Balmoral 2°, West Linton 1°, and Braemar zero. The extreme range of temperature for the year was 70° and upwards over an extensive region, 79° at Braemar and Scaleby, 81° at West Linton, 84° at Garforth, and 85° at Shrewsbury. The localities of smallest range were on the far western and northern coasts, 42° at Scilly, 41° at Deerness, 40° at Baltasound, 39° at Castlebay and Donaghadee and 38° at Lerwick.

7. *Bright Sunshine*.—With the exception of Westminster (102 per cent. of the average) and Tunbridge Wells (101 per cent.) the duration of insolation was everywhere less than the normal, ranging down to 74 per cent. at Cullompton, Durham and York, 69 at St. Ann's Head, and 68 at Stonyhurst. April was an exceptionally brilliant month, while rainy August was as exceptionally dull, followed by a general dulness during September. The aggregate totals for the whole year were less than 1,000 hours in some parts of Scotland and at several stations in or near North of England manufacturing towns, the smallest records being 779 hours at Manchester (City), 822 at Whitworth Park, 827 at Hull, 868 at Glasgow, 879 at Fort Augustus, 912 at Darwen, and 913 at Garforth. Southern and South-Eastern England had the largest records, 1,609 hours at Worthing, 1,612 at Hastings, 1,617 at Bexhill and Folkestone, 1,638 at Eastbourne, 1,664 at Jersey, 1,666 at Felixstowe, and 1,696 in Guernsey.

8. *Fog*.—Inland fogs in January were more frequent than for some years previously, described as thick at times, and at Bromyard there was continuous fog from the 19th to the 25th. The weather of October was remarkable for the unusual frequency and density of fog at that season, being very general, and in many localities described as thick, mainly between the 7th and 15th, and the 23rd and 27th. There was no important fog in the later months. Along the coasts sea fogs were fairly frequent in all months, and often rather thick. The English Channel was, however, less affected than the eastern and western coasts.

9. *Barometer*.—All over the country the mean pressure for the year was below the normal, the deficiency ranging from less than 0.03 in. at Jersey, and a little over that amount at Dover, Yarmouth, and Stornoway to 0.08 in. at Valencia, 0.09 at Blacksod, and 0.1 in. at Birr Castle. The distribution pointed to the prevalence of a low pressure area to the southward of Iceland, the mean reading at Westmanna being 29.70 in., the values increasing to 29.79 in. at Stornoway, 29.97 in. at Jersey, and 30.01 in. at Paris. No very high readings were registered, the highest being 30.64 in. at Lerwick on April 23rd, and 30.67 in. at Oxford on October 4th. On the other hand, there were many very low ones, down to 28.45 in. at Valencia on February 9th, and 27.93 in. at Wick on November 26th. The extreme range of pressure exceeded 2 in. over Ireland and Scotland.

At Southport, on March 4th, the barometer fell, 0·07 in. in 8 minutes, and 0·10 in. in 20 minutes. On December 26th, there was an unusually rapid fall and rise at St. Ann's Head, the fall amounting to 0·8 in. in $4\frac{3}{4}$ hours, a drop of one-third of an inch taking place almost instantaneously during a violent squall, followed immediately by an upward bound of more than a quarter of an inch.

10. *Floods*.—With such frequent heavy rainstorms, as indicated above, many floods were reported in the course of the year, but generally they were moderate. Between January 14th and 27th there were extensive floods in the Midlands, 7,000 acres under water between Northampton and Peterborough. There was also a heavy flood along the Thames Valley. Round Leyland, Lancs, the country was axle deep under water, and the water works stopped on August 1st, as the result of "the heaviest rain for 20 years." A few days later, on the 5th, Greenock was swept by a destructive flood; and resulting from the phenomenal rainfall of the 26th a wide area in East Anglia was under water for several days. The persistent rains of December brought about floods in the Thames and other valleys, the year closing with the water still rising.

11. *Solar Eclipse*.—Interesting records of temperature and radiation variations were made at a number of stations during the progress of the solar eclipse on April 17th, the air temperature sinking 7° at Canterbury and Kensal Green, and solar radiation dropping 47° at Greenwich.

12. *Earthquake*.—At 4.30 a.m. on January 28th an earthquake shock was felt at Gruline and Paltalloch.

13. *Waterspouts*.—A waterspout was seen off Minehead on August 6th, and three striking ones over the Ribble Estuary and Liverpool Bay on the 13th.

14. *Aurora*.—Reports of aurora were uncommon, and the only one described as bright was seen at Dunrossness (Shetland) on January 22nd.

15. *Glazed Frost*.—On several days in January observers recorded a glazed frost, a silver frost, or a silver thaw. At Hampstead, on the 18th, there was tremendous havoc amongst trees and telegraph wires, which had been coated with ice $\frac{3}{8}$ in. thick.

16. *Summer Sky*.—In this and in other countries on both sides of the Atlantic there was, during the summer months, a peculiar haze-like veil over the sky, "producing a grey whiteness," and resulting in a marked diminution in the brightness of the sunshine. There is, as yet, no adequate explanation of the phenomenon, but it has been attributed by many meteorologists to the volcanic eruption at Mount Katmai, in Alaska.

The measurements of the intensity of solar radiation at different places in the Northern Hemisphere showed that the intensity of the radiation reaching the earth was much below its normal value during the last six months of the year.

In continuation of the remarks given in previous annual reports, the following notes refer exclusively to the stations, the results from which are given in Table 40, pages 92-95.

The highest temperatures of the air were at Camden Square and Tottenham 91°; Greenwich and Portsmouth 90°; and at Salisbury 89°.

The lowest temperatures were at Shrewsbury, 2°; Llangammarch Wells, 9°; and at Bettws-y-Coed and Durham 10°.

The heaviest totals of rain were at Bettws-y-Coed, 63·2 ins.; at Llangammarch Wells, 59·3 ins.; and at Buxton 54·4 ins.

The least falls of rain were at Clacton, 22·4 in.; Westminster, 24·3 in.; and at Greenwich, 24·9 ins.

The greatest number of days of rain was at Cromer, 255; Llangammarch Wells, 251; and at Morpeth 242.

The least number of days was at Tottenham, 139; Clacton, 170; and at Portland Bill, 172.